

NIBOR-D[®]

INSECTICIDE

For the control and prevention of general pests such as crickets, cockroaches, silverfish, ants, fleas, lady bugs, drain flies, small flies, cluster flies, darkling beetles and earwigs.

For both interior and exterior use.

Use Nibor-D in apartment buildings, bird and poultry production facilities, buses, carpet cleaning machines, factories, garages, grocery stores, homes, hospitals, hotels, industrial plants, kennels, libraries, manhole covers, markets, military bases, mobile homes, new construction, nursing homes, offices, public and private institutions, restaurants, sewers, schools, ships, theaters, trains, trucks, utilities, warehouses, yachts and zoos.

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. |
| <p>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.</p> | |

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.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are barrier laminate; butyl, nitrile, neoprene and natural rubbers ≥ 14 mils; polyethylene; polyvinyl chloride; and viton ≥ 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.

Engineering Controls Statement

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides {40 CFR 170.240(d)(4-6)} the handler PPE requirements may be reduced or modified as specified in the WPS.

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.

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.

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.

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.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box apply only to users of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- coveralls
- waterproof gloves
- shoes plus socks

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The Worker Protection Standard applies when this product is used to produce agricultural plants on farms, forests, nurseries or in greenhouses.

GENERAL INSECT CONTROL Product Information

Nibor-D is a water soluble inorganic borate salt with insecticidal properties that can be applied as a liquid solution, mop solution or dust. Dry foam applications can be used when better adhesion to treated surfaces and minimal runoff is desired. Residual

effects of Nibor-D will last longer in areas protected from weather and elements. It is effective as both a preventative and remedial treatment to kill and control general and nuisance pests such as, but not limited to, those listed below:

General Ants (including Argentine, Thief, Little Black, Pavement, Odorous House, Crazy and Ghost Ants), **Boxelder Bugs**, **Carpenter Ants**, **Cluster Flies**, **Centipedes**, **Crickets** (including House Crickets, Field Crickets and Camel Crickets), **Darkling Beetles**, **Dust Mites**, **Earwigs**, **Flies**, **Fleas**, **Hide Beetles**, **Lady Bugs**, **Millipedes**, **Roaches** (including German, Brown-banded, Smokey Brown, Brown, American, Australian and Oriental Roaches), **Small Flies** (including Fruit and Drain flies) and **Silverfish**.

Use Nibor-D in apartment buildings, bird and poultry production facilities, buses, carpet cleaning machines, factories, garages, grocery stores, homes, hospitals, hotels, industrial plants, kennels, libraries, manhole covers, markets, military bases, mobile homes, new construction, nursing homes, offices, public and private institutions, restaurants, sewers, schools, ships, theaters, trains, trucks, utilities, warehouses, yachts and zoos.

Nibor-D may be applied into cracks and crevices on outside areas of structures including cracks and crevices around windows, doorframes and other areas where insect pests may enter or to areas where insects hide, such as behind baseboards, storage shelves and wall studs; between elements of construction, equipment and floors; in attics, attic insulation, block voids, box sills, cracks, crevices, eaves, equipment legs and equipment bases, voids and wall voids; in openings around pipes and sinks and openings leading to voids and hollow spaces in walls; on logs, lumber, moist areas, plywood, railroad ties, soffits and utility poles; under refrigerators; and wood-foam composite structural components. Do not apply Nibor-D liquid solutions in conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard.

Application for Food Processing and Handling Establishments, including Federally Inspected Poultry and Meat Plants: In food areas, only apply product into cracks, crevices and other inaccessible areas. Avoid introducing any product into the air. Avoid contamination of food and feed stuffs. Do not apply product directly onto a surface where food is prepared, served or stored. Any product left visible on a food surface after treatment should be removed and surface washed.

Food Areas Include: Serving Areas, such as dining rooms, food storage areas, receiving areas, processing areas, including enclosed systems such as oil and syrup plants, mills and dairies; packing areas, including canning, bottling, wrapping and boxing; and edible waste storage areas. In these areas, direct product applications into cracks and crevices, such as along baseboards and between elements of construction. Do not allow product on any surfaces that may be contacted by food. Do not apply when facility is in operation or when food is exposed.

Non-Food Areas Include: Bathrooms, locker rooms, offices, maintenance rooms, mechanical rooms, trash rooms, garages, janitorial closets, storage areas after bottling or canning and floor drains leading to sewer entries. In these areas, apply product as labeled for other non-food areas.

Always test any materials to be treated for color fastness and potential staining. Product may leave a light residue on dark surfaces. This residue may be removed with a warm damp cloth.

Apply Nibor-D only in areas inaccessible to children and pets. Allow product to dry completely before allowing pets or children back on treated surfaces.

Preparation of a 15% Nibor-D Liquid Solution

Measure approximately 80% of the required volume of water to the mixing vessel. While stirring, gradually add Nibor-D powder into water. For liquid sprays or foams, add 1.5 lbs (approximately 7.5 cups) of Nibor-D for each gallon of finished solution required. Or, if mopping, treating carpets, furniture, mold, mildew, or using a carpet cleaning machine, add only 8 ounces (approximately 2.5 cups) of Nibor-D per gallon of water. Add remaining water to the mixing vessel and stir until Nibor-D has completely dissolved. Use this finished solution as soon as possible. Do not store for an extended length of time.

Nibor-D can be used in conjunction with an insect growth regulator (IGR) such as pyriproxyfen, hydroprone or methoprene, a fungicide/mildewcide, an emulsifiable disinfectant or a non-residual knock-down emulsifiable insect adulticide.

Preparation of a Nibor-D Foam Solution

To create a dry consistency foam, add a surfactant/foaming agent and a Nibor-D liquid solution into foaming application equipment. Generally 1-2 ounces of a foaming agent will create dry foam with the desired expansion ratio of 20:1. Refer to the foaming equipment manufacturer's manuals and the surfactant labels for additional instructions.

Wash and rinse all equipment after each use.

Dust Application Instructions

No powder should be visible after application. Remove or brush any powder visible after application into cracks and crevices.

General and Nuisance Pests, including Lady Bugs: Apply Nibor-D as a dust into the cracks, crevices and void areas of exterior walls and around windows, doors eaves and soffits. Caulking should be applied after application to seal any available crack.

Refuse Containers: Apply to container at the rate of 12-20 ounces per 250 square feet of area.

Floor Drains: Apply 1-2 ounces of dust into the drain opening followed by at least one quart of mop rinse water to control and prevent fly, including small fly, populations.

Sewers and Manhole Cavities: Apply as a dust at a rate not to exceed 12 oz. per 250 square feet using a blower or air pressure equipment.

New Construction: When treating large areas such as wall voids or soffit and subcabinet voids in new and existing construction, dust liberally using dusting application equipment. Apply dust at 12-20 ounces per 250 square feet.

Attic Insulation: Nibor-D can be applied to all insulation materials including cellulose, fiberglass and natural fiber. Make sure the areas around attic soffits and pipe protrusions are properly treated. Do not over-apply or reapply into previously treated attics unless the treated insulation has been removed or additional insulation is installed.

Rolled Insulation: Apply before or after installation at the rate of 1 oz / 8 ft² of insulated area.

Blown Insulation: Apply to existing insulation at the rate of 2 oz / 8 ft² of insulated area. If new insulation is to be installed over any type of existing insulation, apply at the rate of 1 oz / 8 ft² to the existing insulation and then again to the new blown-in insulation.

Add to blown-in insulation applicators at a maximum rate of 1-2 oz / 8 ft² of insulation.

Liquid and Foam Application Instructions

Refuse Containers: Apply liquid or foam solution at a gallon per 200-250 square feet.

Floor Drains: Pour up to one quart of finished solution into each floor drain to prevent and control fly populations. This solution can also be applied as foam into drains.

Mop Solution: This is to be used as a supplemental treatment in conjunction with other pest management practices and may be reapplied as necessary. Apply only to floors by mopping. Allow the mop solution to penetrate into cracks and crevices in the tile or flooring and into crevice areas under equipment to affect possible hidden food sources and harborage areas that may contain small fly larva, including fruit fly and drain fly species and other insect pests. Remove or brush any powder visible after application into cracks and crevices.

Avoid introducing the material into the air or onto any exposed surfaces other than the floor area. Avoid contaminating food or food processing surfaces. Do not apply when foods are exposed or facility is in operation. Do not contaminate feed and foodstuffs.

Carpets and Furniture: A Nibor-D carpet treatment will contaminate the food source of flea larvae and dust mites and will kill them. This application will remove organic food sources and cast skins and force Nibor-D into the carpet fibers to provide a residual to prevent future infestations.

First, clean and thoroughly vacuum all areas to be treated, including surfaces under furniture and beds, and in areas where animals sleep or rest. Remove cushions and vacuum crevices of furniture. Discard vacuum bag after use. Apply solution with an even fan spray at the rate of 1 gallon to every 300-400 ft² of carpet surface area. If carpet pile is dense, use a brush or carpet rake in conjunction with the application, to ensure penetration into the carpet pile. Treat crevices and undersides of couches, chairs and pet bedding. Allow furniture to dry before replacing cushions, bedding, pillows, etc. Do not saturate.

When wood floors, tile floors, cracks, crevices and baseboards are treated, wipe excess solution off exposed surfaces with dry cloth or cleaning pad. Concrete and dirt floors can be treated with a light application. Avoid walking on treated surfaces until dry.

Extraction or Steam Carpet Cleaning Machines: Add carpet cleaning detergent to the Nibor-D finished solution if desired. Add the mixed solution into the dispensing tank of the carpet cleaning machine. Apply 1 gallon of mixed solution to every 150-200 ft² of carpet area. Thoroughly clean carpet cleaning machine dispensing tank and run water through machine to flush after use.

To Control Mildew and Fungus (except in California): Apply to kill and control mildew and fungus in conjunction with conventional moisture control practices such as repairing leaking structural components or leaking pipes, lowering interior humidity levels and, where possible, providing adequate ventilation. Apply as a spot treatment to affected surfaces, including baseboards and wall areas.

Flies, Darkling Beetles and Hide Beetles (adults and larvae) Control in Bird and Poultry Facilities

First, remove birds. Use equipment designed for this type of application. Apply to structural sidewalls, posts, framing, top plates, into cracks and crevices, around insulation and on other structural components that might harbor beetles. Re-apply

application annually, after each grow-out or if facility is washed, sanitized and disinfected.

Dust applications: If birds are in contact with floor or litter: Apply dry product with a spreader directly to the floor or old litter surface at the rate of 1-2 lbs/100 ft² of floor area. Apply a band treatment along bird feeder lines. Reapply annually if needed or after each grow-out. If birds are caged and not in contact with the floor or litter: Apply dry product at the rate of 1½-2 lbs/100 ft² of surface area. For fly control, apply the dust to the surface of manure piles at the rate of 1½-2 lbs/100 ft² of surface area.

Supplemental Liquid applications: Add product at the rate of 1 lb/gallon of water. Apply solution on structural sidewalls, posts, framing, top plates, into cracks and crevices, around insulation and on other structural components that might harbor beetles at the rate of 4 gallons/100 ft² of surface area. For fly control, apply a liquid application to the surface of manure piles at the rate of 1½ lbs of product/gallon of water /150 ft² of surface area.

Wood Treatment Product Information

Nibor-D is a water soluble, inorganic borate salt with insecticidal and fungicidal properties that may be used on wood and applied as a liquid solution or powder. Nibor-D may be used as a preventative treatment (before signs of infestation) and for remedial treatment of infested wood. This product may also be used for pre-treatment of wood before or during the construction process.

Nibor-D kills, prevents and controls wood destroying insects and fungi such as, but not limited to, the following organisms:

Subterranean Termites (*Reticulitermes*, *Heterotermes*, *Coptotermes* (Formosan)), **Drywood Termites** (*Kalotermites*, *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*), and **Decay Fungi** including white rot, brown rot (i.e., *Poria*) and wet rots.

Nibor-D is recommended for wood and cellulose materials in accordance with the specific treatment methods described herein and 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 treatable materials include, but are not limited to, decks, fences, steps, sheds, barns and other outbuildings, ties, wool insulation, stumps, utility poles, timber, lumber, logs and plywood. 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 (In Situ Treatment)

10% 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% Liquid Solution: Prepare solution as above, but gradually add 1.5 lbs of Nibor-D for each gallon of treatment solution needed. Use this solution as soon as possible and do not store for an extended length of time.

15% 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

Liquid Application: Use a liquid solution to control wood destroying organisms, and to kill active infestations of termites, powderpost beetles and wood decay fungi. 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.

For remedial control of wood attacking organisms or for the protection of wood against future infestations, either two applications of a 10% liquid solution or one application of a 15% liquid solution are required.

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.

Foam Application: Nibor-D may be applied as foam to wood surfaces or injected into wall voids or insect galleries. 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. Foam can also be injected into insect galleries until run-off is observed.

Dust Application: Apply Nibor-D as a dust to kill and control wood destroying organisms such as termites and carpenter ants by drilling and injecting the powder into galleries, by dusting generously on wood surfaces, or by injecting or dusting into wall voids such as between studs, block voids, box sills, eaves, attics, soffits, etc. Apply to these areas at the rate of 0.5 ounce (12-14 grams) per square foot. Dust can be injected or dusted into utility poles at a rate of 0.25 pound per cubic foot of area to be treated.

Wood Treatment during Construction for Prevention of Wood Destroying Organisms: Spray, foam or dust applications of Nibor-D may be made to wood after framing and roofing are in place and before insulation and drywall are installed. Apply Nibor-D liquid solutions to all accessible surfaces of bare wood at a rate of approximately 5 gallons per 1000 square feet of wood surface area. 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 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: Non-refillable container; do not reuse or refill this container. Completely empty container by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment; then offer for recycling, if available; or dispose of 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.



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MATERIAL SAFETY DATA SHEET

NIBOR-D[®]

Insecticide

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

SECTION 1 – PRODUCT AND COMPANY INFORMATION

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

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 15 for TSCA/DSL Chemical inventory listing)

SECTION 2 – INGREDIENTS INFORMATION

This product contains greater than 98% 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 3 – HEALTH HAZARD INFORMATION

Emergency overview: 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 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 dust at levels greater than 10 mg/m³.

Eye contact: Non-irritating to eyes in normal use.

Skin contact: 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: 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 4 – EMERGENCY AND 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. 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 5 – FIRE & EXPLOSION DATA

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 6 – ACCIDENTAL RELEASE MEASURES

General: 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 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 7 – 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 8 – EXPOSURE CONTROLS AND 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 9 – 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

SECTION 10 – 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 11 – TOXICOLOGY

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. 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 indicates no adverse effects on human eye. Therefore Nibor-D is not considered to be a human eye irritant in normal industrial use.

Sensitization: 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.

Refer to Section 15 for additional regulatory information.

SECTION 14 – 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 15 – 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-l, 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.*

- a) 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.
- b) 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 16 – 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:

NISUS Corporation
Technical and Sales Support
800-264-0870

SECTION 12 – 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)

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 13 – 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).



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