

FEB 24 1994

Mr. Eliot I. Harrison
Agent for U.S. Borax Research Corp.
7910 Woodmont Ave., Suite 1000
Bethesda, MD 20814

Dear Mr. Harrison:

Subject: TIM-BOR Insecticide
Technical Bulletin
EPA Reg. No. 1624-39
Your submission dated Feb. 4, 1994

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable and a stamped copy is enclosed for your records.

Sincerely yours,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

Enclosure

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U.S. Borax Service Bulletin 200 & Specimen Label



TIM-BOR[®] INSECTICIDE

ACCEPTED
with COMMENTS
by EPA Letter Dated:

FEB 24 1994

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

1124-39

TECHNICAL INFORMATION

TIM-BOR[®] is an EPA registered insecticide for use by professional Pest Control Operators. TIM-BOR is a unique product for the protection and remedial treatment of wood against all wood destroying organisms. TIM-BOR is a white powder that readily dissolves in water and is applied as a 10% solution to wood. There is no change to the wood's appearance, no unpleasant odors and there are no hazardous solvents to use. The TIM-BOR treatment provides permanent protection because the active ingredient, Disodium Octaborate Tetrahydrate, does not break down.

TIM-BOR solutions are:

- easy to prepare, handle and apply
- not corrosive to most metals
- very low acute toxicity
- easily washed off with soap and water
- not absorbed through the skin
- highly toxic to wood destroying pests

TIM-BOR Controls Wood Destroying Organisms Including:

Powder Post Beetles Old House Borers Flat Headed Borers	Lyctidae and Anobiidae Cerambycidae Buprestidae
Subterranean Termites Drywood Termites Dampwood Termites	Reticulitermes, Coptotermes, Heterotermes Kaloterms and Incisitermes Zootermopsis spp.
Carpenter Ants	Camponotus spp.
Decay Fungi	Brown (including <i>Poria</i> spp.) White and Wet Rots

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TIM-BOR is suitable for all wood that is not in contact with the ground and not exposed to rain. Applications can be made to wood in attics, walls, around windows, floors and subfloors, joists, sill plates, etc. TIM-BOR will not affect gluing, painting or sealing the wood after treatment. TIM-BOR protects and preserves the wood permanently!

TIM-BOR solutions penetrate into the wood, treating more than just the surface. The process works on all species of wood and is one of the mechanisms that enables TIM-BOR to control and eliminate decay fungi. In fact, the moisture which the fungi need for growth also provides the path for the sodium borate to penetrate throughout the infection and eliminate the fungi.

HOW DOES TIM-BOR WORK?

The active ingredient of TIM-BOR, sodium borate, functions as a slow acting stomach poison in insects and a contact poison to decay fungi. Termites accumulate the active ingredient while they are feeding. Since borates are slow acting poisons, these termites can move throughout the colony and spread the insecticide by the feeding of nymphs, soldiers and reproductives, or by cannibalism when these termites die. Behavioral changes have also been observed. When termites die in a given area, that area is usually avoided by other termites. In addition, the treated wood is not the first choice of the termite and is avoided.

TIM-BOR treated wood also deters wood destroying beetles by killing larvae as they hatch from eggs laid on treated surfaces. If some larvae would survive long enough to penetrate the wood surface, they will soon die after ingesting treated wood. Existing larvae in the wood will pupate and the emerging adults will die when they eat treated wood.

Carpenter ants do not consume wood but they can cause substantial and rapid damage by excavating cavities in wood for nesting. TIM-BOR treated wood is very unpalatable, and is not excavated by carpenter ants. However, treated wood may not prevent or eliminate a carpenter ant infestation, since the ants can penetrate construction features and avoid chewing treated wood. TIM-BOR powder in wall voids and around conduit and plumbing will provide another level of control for these pests.

Decay fungi can infect and rapidly destroy wood where there are moisture problems. Some fungi can actively conduct moisture from the ground or a leak to wood of lower moisture content to expand the colonization of the wood. TIM-BOR is highly toxic to decay fungi and will kill the fungi present and/or protect against future infections.

Application of TIM-BOR to control wood destroying organisms must be part of an Integrated Pest Management (IPM) Strategy. Problems which may have led to the infestation or that may do so in the future must be corrected. This includes correcting moisture leaks, providing adequate ventilation and moisture barriers and removal of debris from crawl spaces.

After the initial treatment, inspections should be performed on a regular basis and additional preventative spray treatments of

TIM-BOR (up to 4) can be made. Each additional treatment will increase the borate loading and penetration into the wood, making it more repellent to insects and permanently controlling fungi.

SPECIFICS FOR STRUCTURAL APPLICATIONS

Preventative and Remedial Treatment:

Basement or Crawlspace Structure

Spray a 10% TIM-BOR solution on all bare wood accessible in the flooring and subfloor. These measures will control an infestation even when certain parts of a gallery are not directly sprayed. Adequate measure must be taken to correct moisture problems (leaks, etc.) that may have led to and sustained the infestation.

Attics

Spray TIM-BOR solutions to all accessible wood: rafters, trusses, top-plates, ceiling joists, plywood, particle board, etc. Areas with known infestations can be drilled and pressure injected when possible. This has been a very effective technique in spot treating for control of drywood termites.

Exterior Wood

TIM-BOR can be applied to bare siding, trim or logs. Applications can be made by spray or pressure injection techniques. Painted or sealed wood needs to be pressure treated or the sealing coat removed prior to application. Following treatment, the exterior wood should be sealed to protect TIM-BOR from leaching out. Wood should be completely dry (at least 48 hours) before a sealing coat (paint, varnish or waterproofing seal) can be applied. When properly applied, TIM-BOR will not interfere with application of sealants. DO NOT apply TIM-BOR in inclement weather.

Pretreatment:

Spray applications of 10% TIM-BOR solutions may be made to wood during construction. All accessible bare wood surfaces should be sprayed including: floor joists, subflooring, sill plates, top plates, wall studs, trusses, rafters, roofing plywood, etc. Application should be performed after framing and roofing are in place and before insulation and drywall are installed. Avoid spraying any electrical component. Protect treated wood from excessive rain.

End Cut Treatment:

Certain pressure treated lumber should be treated when cut at a construction site because typical wood preservatives do not penetrate some wood species effectively. 10% TIM-BOR solutions can be used to treat these "end-cuts" and protect the exposed untreated wood.

EXAMPLE: Field End Cut Treatment

1. Prepare 2-3 gallons of 10% TIM-BOR solution.



- b. If desired, add about 1/2 ounce of dark food coloring (blue or red) per gallon of solution. This will help mark treated wood for visual inspection.
- c. Spray, brush, or dip the end-cuts over a plastic drop cloth to collect any runoff. Spray or brush generously until the wood will accept no more solution; treat about the first 8 inches from each end-cut. Alternatively, dip each end-cut for about 5 minutes. End-cuts can be treated in a structure most effectively by a spray technique since this allows better saturation of hidden surfaces (ends) with solution and allows construction to proceed without having to treat most end-cuts before assembly.

- Oversized containers help prevent careless spills and minimize splashing during mixing.
- Adding TIM-BOR to water:
 - a. Having water in the mixing container before adding TIM-BOR reduces dust and speeds the mixing process.
 - b. Adding water to dry powder is not recommended. This tends to form clumps of material that dissolve slowly.

DIRECTIONS FOR USE

MIXING INSTRUCTIONS

1. Estimate the amount of TIM-BOR solution needed to complete the job. Approximately 5 gallons of solution are needed to cover 1,000 square feet of wood surface area. This amount can vary depending on the moisture content and species of wood.
2. Using a slightly oversized container (bucket) fill to about 80% of the final required volume, then add 1 lb. of TIM-BOR powder per gallon of required solution while stirring. The remainder of the water is then added and the solution is agitated until all of the product has dissolved.

EXAMPLE: Prepare 5 gallons of 10% TIM-BOR solution:

- a. Add 4 gallons of clear water to a six gallon bucket.
- b. Add 5 one lb. measures of TIM-BOR while gently stirring.
- c. Add enough water to bring the final volume to 5 gallons and continue to stir until all of the TIM-BOR has dissolved.

LARGE TANKS:
(For paddle, jet, bypass and backflow agitation systems)

- a. Add water to about 80% of the final desired volume.
- b. Activate the agitation system or start the recirculating pump.
- c. Add the required amount of TIM-BOR in about 5 lb. portions or smaller. Do not allow large clumps of material to form. Break them up with a paddle or with spray water from the recirculating system. Then continue to add more solid material.
- d. Add water to bring total volume to the desired amount. Continue to agitate the solution until all of the solids dissolve.
- e. Agitate the solution briefly at the beginning of each spray job or after the solution has been standing for an extended period.

TIPS:

- Warm water will dissolve TIM-BOR more rapidly.
- Hand mixing with a paddle or with a mechanical mixers will give excellent results.

APPLICATION: SPRAY PROCEDURES

1. Spray wood evenly using a medium to coarse spray at low pressures (20-30 psi).
2. Ensure that all accessible wood surfaces are thoroughly wetted. Wood will absorb TIM-BOR solution at different rates. Surfaces that absorb solution rapidly should be sprayed again. The following table describes the best application scheme for the target organism:

ORGANISM	METHOD
Fungi	One spray or for serious infestations two sprays 1-24 hours apart.
Beetle Larvae	Two sprays 1-24 hours apart.
Termites	Two sprays 1-24 hours apart for remedial use. When accessible, drill and inject solution directly into wood where galleries or kickholes are detected. See Injection section for more details.
Formosan Subterranean Termites	Two sprays 6-24 hours apart. When accessible drill and inject solution directly into wood where galleries or tubes are detected. See Injection section for more detail.
Preventative Application Against Wood Destroying Organisms	Two or more sprays 1 hour to 1 year apart. This treatment plan is intended to be part of an ongoing preventative, maintenance and inspection plan.

TIPS:

- Best results and penetration will be obtained with ambient temperatures above 55° F.
- Do not spray frozen wood!
- Do not spray painted or waterproofed surfaces.
- Do not spray or spill onto soil or foliage.
- TIM-BOR will not damage concrete or masonry work but may leave white crystals on the surface after drying. These can be easily washed or brushed off.

APPLICATION: PRESSURE INJECTING TIM-BOR SOLUTIONS

Equipment:

Spray system with operating pressure greater than 75 psi
Whitmire injection tip, 1 inch (part #14-0384) hand drill,
 $\frac{1}{8}$ or $\frac{7}{16}$ inch drill bits.

TIM-BOR solutions can be injected into infested wood. The area treated includes the immediate accessible infestation and adjacent areas. This procedure is *not* an alternative to spraying, rather an *adjunct* to spraying when structural timbers thicker than 4 inches are infested. This procedure can also be performed on painted and sealed wood.

1. Injection holes ($\frac{7}{16}$ or $\frac{1}{8}$ inch in diameter) should be drilled in the area of suspected infestation. The holes should be drilled in a diamond pattern with the long axis along the grain and the holes spaced every 12 to 16 inches. Holes should be spaced 4 to 6 inches across the grain. (See Fig. 1). When possible the wood should be treated one diamond pattern beyond the immediate area of visible infestation.
2. Drill the holes through the widest dimension available. Do not drill completely through the beam, leave about $\frac{3}{4}$ inch undrilled (See Fig. 1). If the widest surface is not accessible, holes can be drilled in the narrower surface. If the diamond pattern cannot be used, drill holes 8-10 inches apart. All holes should be deeper than the injection tip. A longer injection tip should not be used (See Fig. 2).
3. Press and hold the injection tip firmly into each hole and inject solution until runoff is observed from other holes, galleries, kickholes, etc. When injecting solid wood maintain the injection pressure for 15 to 60 seconds at each hole. Longer times give better penetration.
4. Release the trigger, wait briefly, and withdraw the injection tip. Excess solution can be absorbed with paper towels and collected for disposal (ordinary trash).

EXAMPLE: Treat an infestation in a structural beam with nominal 4 x 10 inch dimensions.

- a. Each hole is drilled approximately 3.25' deep in the diamond pattern shown.
- b. Solution is injected under pressure (75-150 psi) for 15 to 60 seconds in each hole.
- c. If a gallery is directly penetrated, solution should be injected until runoff is detected from other holes. Wood surrounding the gallery should also be pressure injected. Treat "one diamond" length beyond the suspected area of infestation when possible.

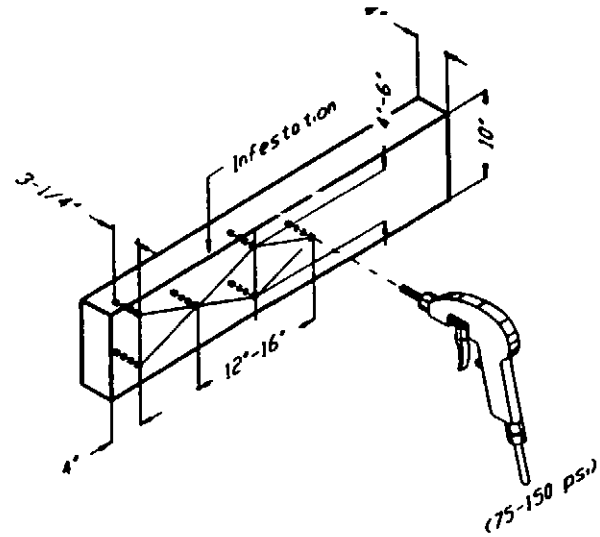


FIGURE 1: Drill and pressure injection of a 4"x10" structural beam with 10% TIM-BOR solution.

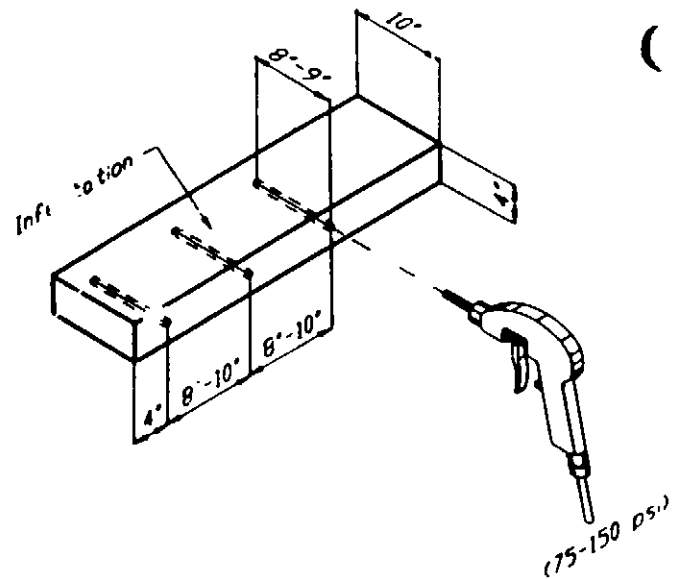


FIGURE 2: Alternative pressure treatment of a 4"x10" structural beam.

APPLICATION: CARPENTER ANT CONTROL WITH TIM-BOR POWDER

Carpenter ants do not chew TIM-BOR treated wood, however, it may be difficult to spray all wood susceptible to attack. Fortunately, carpenter ants are quite susceptible to TIM-BOR dust and can be effectively controlled by dusting wall voids through electrical outlet and switch box access points.

1. Apply ½ ounce of TIM-BOR dust to all accessible wall voids (or 2-3lb/100 ft²). Focus on dusting the lower portions of wall voids and *ant guidelines* such as electrical and plumbing lines. Dust through cracks and crevices and into hidden areas where colonies may be active.
2. Locate and seal access points on the exterior of the structure by caulking holes and replacing damaged wood. Correct moisture problems.
3. Exposed wood may be sprayed with 10% TIM-BOR solution to prevent excavation by Carpenter ants. One application should be adequate.

TIPS:

- Use of a dust mask will prevent irritation during application.
- Dust above and below fireblocks in certain types of wall construction.
- Areas to be dusted should be dry.
- Dusting large open areas is not recommended since ants tend to follow specific structural features (cracks, ridges, etc.) as guidelines rather than open areas.

CARE OF SPRAY EQUIPMENT

1. TIM-BOR solutions are compatible with stainless steel, brass and all plastic components of spray equipment. Solutions should be mixed as needed and drained from equipment daily.
2. Equipment should be rinsed with clear water to flush remaining TIM-BOR out of equipment. The rinsate should be saved and treated as clean water to make up future TIM-BOR solutions or disposed of according to local regulations.
3. Excess or unused 10% solution should not be left in spray equipment overnight or for extended periods of time. It should be stored in sealed plastic containers for use in future applications. Keep these solutions from freezing.

TIPS:

- Store unused 10% TIM-BOR solutions in sealed plastic

containers labeled as "Ready-to-Use" solution.

- Previously stored 10% solutions are completely miscible with freshly made solutions. Simply combine clear solutions.
- Some solids may form from solutions after prolonged exposure to cold (typically at temperatures below 40°F), or if water has been allowed to evaporate over an extended period of time from a 10% solution. Bring cold solutions to room temperature and agitate until all solids redissolve.
- Do not use a solution with solids present.

SAFETY

1. TIM-BOR is a light powder and can generate dust. Use of a light duty dust mask (such as 3M model 5800) is recommended when mixing. Any type of glove will protect skin adequately. Eye protection should always be worn.
2. Accidental Exposure: Consult the MSDS for more information.
 - Skin — Wash with mild soap and water.
 - Eyes — Flush with tepid water for 15 minutes. If irritation persists, consult a physician.
 - Inhalation — Remove to fresh air.
 - Ingestion — Drink plenty of water. Induce vomiting and contact a physician or poison control center.
3. Wash hands after handling TIM-BOR and its solutions and before eating or drinking.

STORAGE

1. TIM-BOR should be stored in a dry place above ground where children and animals cannot gain access.
2. TIM-BOR 10% solutions should be stored in carefully labeled sealed plastic containers and kept from freezing.
3. There is no fire hazard with TIM-BOR or its solutions.

ENVIRONMENTAL

Boron is an essential micronutrient for plant life, however, 10% solutions are concentrated enough to be phytotoxic to all foliage.

- Do not carelessly spill or apply TIM-BOR to crop lands, ornamental plants, trees, or lawns.
- Do not apply TIM-BOR to any body of water. Certain aquatic life forms are very sensitive to excess boron concentrations.

TIM-BOR

INSECTICIDE

Manufactured by:
United States Borax & Chemical Corporation, 3075 Wilshire Blvd.
Los Angeles, CA 90010 Emergency Phone: (714) 774-2673

FOR PROTECTION AND PREVENTATIVE TREATMENT OF WOOD* AGAINST DECAY FUNGI AND WOOD-DESTROYING INSECTS, AND FOR REMEDIAL CONTROL OF SUCH PESTS IN INFESTED WOOD.

(*ALSO FOR WOOD-FOAM COMPOSITE STRUCTURAL COMPONENTS.)

ACTIVE INGREDIENT:

Disodium Octaborate Tetrahydrate 98%
($\text{Na}_2\text{B}_4\text{O}_{13} \cdot 4\text{H}_2\text{O}$)

INERT INGREDIENT: 2%
(Product contains 2% H_2O - absorbed moisture)

EPA Reg. No. 1624-39

EPA Est. 1624-CA-1

CONTAINER DISPOSAL: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

DIRECTIONS FOR USE

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

GENERAL INFORMATION

TIM-BOR is a water soluble inorganic borate salt with insecticidal, termiticidal, and fungicidal properties. TIM-BOR is effective for protection and remedial treatment of wood against wood-destroying organisms, including the target pests listed below. This product can be used for remedial treatment of wood infested with target organisms, for preventative treatment of wood in existing structures (before signs of infestation), or for pre-treatment of wood during construction.

TARGET ORGANISMS

TIM-BOR is effective for treatment of wood (and wood-foam composite structural components) against: (1) decay fungi, including Brown (i.e. Poria), White, and Wet Rots; and (2) wood-boring insects, including the following termites and beetles.

- Subterranean Termites
Reticulitermes, Heterotermes
Coptotermes (Formosan)
- Drywood Termites
Zootermopsis
- Dampwood Termites
Kaloterms, Incisitermes
- PowderPost Beetles
Lyctidae
- "False" PowderPost Beetles
Bostrichidae
- Furniture and Deathwatch Beetles
Anobiidae
- Old House Borers, Longhorn Beetles
Cerambycidae
- Ambrosia Beetles
Scolytidae
- Carpenter Ants
Camponotus

TIM-BOR can also be used to control the fungus, Fomes Annosus, which infects cut tree (conifer) stumps. Consult the USDA Forest Service or state/local forestry agencies for specific Fomes Annosus control application instructions.

WOOD

TIM-BOR is recommended for wood materials, in accordance with the specific treatment methods described below. TIM-BOR 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 soil. Types of wood include, but are not limited to, all types of lumber, logs, and plywood. This product is toxic to wood-destroying insects, but surface etching of treated wood may occur.

KEEP OUT OF REACH OF CHILDREN

**PRECAUTIONARY STATEMENTS:
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

Harmful if swallowed. Avoid contact with eyes. Wash thoroughly after handling. Avoid contamination of food and feed. Do not leave container where children or animals may gain access.

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED, immediately contact a physician or Poison Control Center. If these are unavailable, give the victim 1 or 2 glasses of water and induce vomiting by touching back of throat with fingers. Do not induce vomiting or give anything by mouth to an unconscious person. **IF IN EYES**, flush with plenty of water. Get medical attention if irritation persists.

IF ON SKIN, remove contaminated clothing and wash skin with soap and water.

IF INHALED, remove victim to fresh air.

ENVIRONMENTAL HAZARDS

TIM-BOR or TIM-BOR solutions carelessly spilled or applied to cropland or growing plants, including trees and shrubs, may kill or seriously retard plant growth. Do not contaminate water when disposing of equipment wash-water. Do not apply directly to any body of water.

STORAGE AND DISPOSAL

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

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.

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PREPARATION OF TREATMENT SOLUTION

A 10% aqueous solution is used for treatment. To prepare solution, water should be added to the tank to about 80% of the final volume of solution required. While agitating, 1.0 pound of TIM-BOR is then gradually added for each gallon of treating solution that is required. The remaining water is then added and the solution is agitated until the product has dissolved.

REMEDIAL AND PREVENTATIVE TREATMENT

For remedial control of organisms attacking wood, apply the 10% aqueous solution of TIM-BOR by brush or spray until surface is thoroughly wet (approximately 5 gallons per 1000 square feet). Application may also be made by drilling and then injecting the solution under pressure into sound wood or until run-off is observed from entry/exit holes of infested wood.

Alternatively, apply TIM-BOR powder to infested members by drill and injection into galleries or dust generously on wood surfaces and in wall voids at a rate of approximately 0.5 ounces (12-14 grams) per square foot.

PRE-TREATMENT

Spray or powder/dust applications of TIM-BOR may also be made to wood during construction. Apply solution to all accessible surfaces of bare wood at a rate of approximately 5 gallons per 1000 square feet. Application should be performed after framing and roofing are in place and before insulation and dry wall are installed. Avoid spraying electrical components. Protect treated wood from excessive rain. End-cuts of wood may also be treated by spray or brush methods listed above, or by 5 minute dipping in TIM-BOR treatment solution.

Current U.S. Borax specifications/service bulletins should be followed for all treatment methods to ensure adequate chemical loadings in wood.

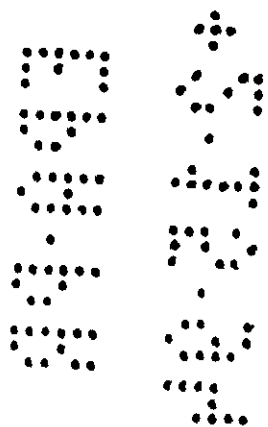
NOTICE

Because of many varying conditions affecting use and application, manufacturer warns buyer that these may impair or vary the results or effects of the use of this product. In any event, complete prevention of decay by fungi or other organisms is not guaranteed. Neither manufacturer nor seller shall be liable in respect to any injury or damages suffered by reason of the use of this product for a purpose not indicated by the label, or when used contrary to the directions or instructions hereon, nor with respect to breach of any warranty not expressly specified herein. Buyer accepts this material subject to these terms, and assumes all risk of usage and handling except when used or handled in accordance with this label.

There are no express warranties on TIM-BOR Insecticide or implied warranties of merchantability or fitness for any particular purpose, except as specifically stated herein. Manufacturer shall not be liable for any consequential damages based on the use of the product.

Western Area Office:
800/729-2672 (Rosemont, IL)
Eastern Area Office:
800/366-2672 (Montvale, NJ)





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