

**WESTERN AREA POWER ADMINISTRATION**

**PEST CONTROL  
GUIDANCE MANUAL**

**SEPTEMBER 1999**

## **Instructions For Using This Manual**

The Pest Control Guidance Manual was written as an aid in the control of unwanted pests (including certain rodents, birds, insects, and fungi) at Western's substations, yards, storage facilities, and along transmission lines.

The users of this document must recognize that this is a living document. This document should be looked upon as a working manual with revisions or additional information noted for inclusion in future updates. Revisions are to be expected as regulations change, and as the manual is put into Westernwide use.

It is hoped that the manual will provide users with useful information for managing miscellaneous pests and provide for the health and safety of Western employees and the general public. This manual should not be considered an all-inclusive document. Up-to-date information regarding recommended materials and methods should be obtained from your State animal damage control or pesticide regulatory agency, or the pesticide label. In addition, the users of this document must rely upon their knowledge of historic and current facility pest control management methods and their professional judgement to determine the applicability of each pest control management method or procedure.

The information given in this manual is supplied with the understanding that no endorsement is implied or discrimination intended.

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## 1.1 BACKGROUND AND DOCUMENT ORGANIZATION

This document presents the Pest Control Program (PCP) for transmission facilities in Western Area Power Administration's (Western's) 15-state service area. Western operates and maintains more than 17,000 miles of transmission lines, more than 260 substations, and other electrical facilities. This PCP provides guidance for the control of unwanted pests (including certain rodents, birds, insects, and fungi) at Western's substations, yards, and storage facilities. This document does not address control of unwanted vegetation and use of herbicides; these topics are discussed in a separate document, "Western Area Power Administration Integrated Vegetation Management Environmental Guidance Manual."

The underlying need for the PCP is to ensure reliable and cost-effective operation of Western's system, while protecting the environment, and the health and safety of Western employees and the general public. Western follows the principles of Integrated Pest Management (IPM), which promotes the use of several methods as one management system to control unwanted pests.

This document is organized in the following manner:

- Section 1.0 - Background, Objective, Policies
- Section 2.0 - References - summarizes of State and Federal pesticide regulations and interagency agreement information
- Section 3.0 - Definitions and Terminology
- Section 4.0 - Rodent Control
- Section 5.0 - Bird Control
- Section 6.0 - Insect Control

- Section 7.0 - Fungicides/Wood Preservatives
- Section 8.0 - General Storage, Clean-up and Disposal Procedures
- Section 9.0 - References/Credits
- Appendixes - include State-by-State summaries of pesticide regulations; information on certain repellents, pesticides, and wood preservatives; consumer information sheets for treated wood utility poles; employee protection from hantavirus; building construction specifications; and State spill response contacts.

## 1.2 OBJECTIVES AND POLICY

The specific objectives of Western's PCP all relate to the underlying need to ensure reliable operation and service. Specific objectives include:

- **Prevent Operation Hazards**

Actions of rodents and certain birds can cause flashovers and outages. Insects can present a safety hazard to operators and interfere with equipment operation. Wood poles can become weakened by fungal decay, and their failure can cause outages.

- **Provide Safe Access for Maintenance and Repair**

Western's employees must be able to safely maintain and repair equipment. Some pests can create unsafe working conditions.

- **Prevention of Damage to Equipment and Buildings**

Insects (e.g., termites) and some birds (e.g., woodpeckers) can damage or destroy the structural integrity of wood poles and structures.

- **Protect Environmental Quality**

Western's program is designed to minimize potential impacts to water quality, wildlife, and soil resources. The program aims to safeguard environmental values within the constraints imposed by high-voltage transmission line and substation operation and maintenance.

It is Western's policy to adhere to the principles of IPM. Therefore, Western will strive to use a variety of appropriate and cost-effective control methods. State Extension offices and publications (many available on the Internet) are good sources of information for control methods and IPM. The IPM Network is available online at <http://www.reeusda.gov/agsys/nipmn/index.htm>. Another good overall IPM reference is "Common Sense Pest Control" (Olkowski, et al. 1994).

Where chemicals (pesticides) are the best choice, they will be used for specific pest control in a safe and effective manner. Procedures for their selection, use, storage, disposal, and cleanup are provided in this manual.

This section provides information regarding certain reference materials essential to Western's PCP. These references include **applicable State and Federal regulations** regarding pesticides, plus information on an **interagency agreement** that Western is negotiating with other agencies regarding pest control matters. **This section provides a brief regulatory overview; details can be found in Appendix A**, which includes State-by-State summaries of pesticide regulations. The appendix identifies those pesticides that are classified as "restricted" or "limited use" and, therefore, should be applied only by certified applicators.

The information provided here and in the appendixes is current as of September 1999. Because the nature of the regulatory environment is constantly changing, discussions and communications with Western Environmental staff and with the regulatory agencies are essential to ensure compliance.

## 2.1 FEDERAL REQUIREMENTS

The **Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)** regulates the manufacture, use, storage and disposal of chemicals used as pesticides as described in 40 CFR Parts 150-180. The focus of FIFRA is on pesticide producers; however, this section will emphasize the parts of the regulation applicable to the use, storage and disposal of pesticides. The key points of FIFRA are as follows:

- Regulates all pesticides including herbicides, insecticides, rodenticides, avicides, fungicides, and plant growth regulators.
- Regulates all pesticide labels and packaging.
- Classifies pesticides as unclassified, general use or restricted use (40 CFR Part 152, Subpart I). Restricted use may prescribe restrictions

relating to the products, composition, labeling, packaging, uses, or the status or qualifications of the user.

- Describes the written records certified applicators need to keep.
- May give fines of up to \$25,000 and jail sentences of up to one year for misapplication of pesticides and violation of FIFRA standards.
- Provides for the registration of pesticides or the cancellation of a registration.
- Provides worker protection standards.

**Users of restricted use pesticides should particularly note the following regulations:**

- Disposal and Storage of Pesticides (40 CFR Part 165) - specifies the regulations and procedures for the disposal or storage of pesticides, pesticide containers, and pesticide-related wastes, and for the acceptance for safe disposal by EPA of pesticides whose registration has been canceled.
- Certification of Pesticide Applicators (40 CFR Part 171) - outlines the requirements for applicators of restricted use pesticides. Includes the categorization of commercial applicators, standards for certification of commercial and private applicators, and supervision of noncertified applicators.

**The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):**

- Regulates methods of cleaning up recent and past spills of hazardous substances.

- Defines time period within which EPA and other agencies must be notified of current spills of hazardous substances.
- Uses reportable quantities (RQs) of hazardous substances to decide when Federal and State agencies are notified of spills.
- CERCLA and the National Contingency Plan specify Federal Natural Resource Trustees. DOE is a designated trustee for natural resources that are on, over, or under land under its jurisdiction and not specifically the responsibility of some other resource management agency.

Federal facilities that have released hazardous substances should, therefore, clearly be concerned about natural resource damage liabilities. In other words, DOE may have a dual role; where DOE activities have resulted in hazardous substance releases, DOE is the CERCLA Lead Response Agency and as such may be subject to natural resource liabilities to other trustees; but DOE is also the trustee for the natural resources under its own jurisdiction.

**The Superfund Amendments and Reauthorization Act of 1986 (SARA Title III), also known as the Emergency Planning and Community Right-To-Know Act (EPCRA):**

- Sets up State emergency response commissions and local emergency planning committees.
- Requires industrial facilities to provide written plans to describe what they would do in the event of a “chemical emergency”.
- Requires an annual inventory of all chemicals on site when certain amounts are exceeded.
- Must provide the State emergency response commissions, local emergency planning committee, and the local fire department with names and quantities of hazardous substances stored.

### **The Occupational Safety and Health Administration (OSHA):**

- Protects worker health and safety.

### **OSHA'S Hazard Communication Standard:**

- Requires workers be provided with a Material Safety Data Sheet (MSDS) for all hazardous materials including pesticides.
- Trains workers on the hazards of the material handled.
- Provides information to workers on how to protect themselves and what to do during emergencies such as spills and fires.

### **The Department of Transportation (DOT):**

- The Federal Department of Transportation regulates the shipping of pesticides and other hazardous materials.

### **HMTA, the Hazardous Materials Transportation Act, requires:**

- Placards and shipping papers for shipping certain quantities of hazardous materials.
- Reporting of transportation accidents involving hazardous chemicals.
- Training of commercial drivers and workers who unload hazardous chemicals.

State OSHA, EPA, Agricultural agencies and local Health and Weed Control Agencies may also have specific regulations which deal with pesticide use, spills, transportation and disposal.

### **The Endangered Species Act:**

- Protects listed plants and animals that are threatened by habitat destruction, pollution, over harvesting, disease, predation, or other natural or man-made factors.
- Stipulates that listed species cannot be possessed, taken, or transported without special permission. All Federal agencies must ensure that their activities do not jeopardize a listed species or its critical habitat.
- Provides for review of pesticide formulations and their application methods and rates to determine if pesticide use may have potential adverse effects on listed species or their critical habitats.
- A black-footed ferret survey must be conducted prior to use of pesticides for prairie dog control (see Figure 4-2).
- Note: There are pamphlets available for certain counties that restrict the use of pesticides in the habitat or area of occurrence of listed species.

## **2.2 STATE PESTICIDE REGULATIONS AND REQUIREMENTS**

Western will comply not only with all Federal regulations regarding pesticides, but also State regulations. These regulations include:

- Pesticide applicator certification
- Applicator record keeping requirements
- Pesticide spill and disposal requirements
- Bulk storage of pesticides
- Notification requirements

All 15 States in Western's service area have primacy for regulating the use, storage and disposal of pesticides.

**Pesticide regulations vary from State to State (see Appendix A, State Pesticide Regulations); however, general guidelines applicable to pesticide applicators are discussed below. Individual States should be contacted for specific State requirements.**

### **Pesticide Applicator Certification**

All States require a commercial pesticide applicator to be certified or licensed. To qualify, a person must pass an EPA-approved examination that tests the knowledge and understanding of Federal, State and local pesticide regulations, terminology, safety, types of pesticides, environmental consequences, and other categories as required. An annual fee is required for a license, and continuing education is generally necessary for recertification.

### **Applicator Record keeping Requirements**

All States require, at a minimum, the following information be kept on file for two or more years. These records must be maintained for each application of any restricted use or limited use pesticides or any pesticides applied by a commercial applicator.

- Name and address of person who made application
- Location where application was made
- Target pest
- Specific pesticide applied
- Application rate
- Date and time of application

### **Pesticide Spill and Disposal Requirements**

Most States have a generalized regulation stating that no person may dispose of surplus pesticides, empty pesticide containers and devices, or pesticide rinsate in such a manner as to endanger the environment, humans, vegetation, crops, livestock, wildlife or beneficial insects, or pollute any waterway. Some states (e.g., North Dakota) have empty pesticide container repositories. For the location of these facilities, contact the State Hazardous Waste Department.

## **Bulk Storage of Pesticides**

Most States require that pesticides concentrates and dilute mixtures be stored in a way that will prevent contamination of other products by means of volatilization, leakage or breakage, which can create a risk to humans, property, domestic or wild animals, or the environment. This includes keeping storage areas clean and orderly, limiting access to storage areas, placing hazardous materials warning signs on storage areas, providing pertinent information to the local fire department, and keeping fire extinguishers and materials for cleaning up spills on site.

Many States now require secondary containment measures and mixing and loading pads for bulk storage of pesticides. Bulk storage generally refers to quantities greater than 55-300 gallons of concentrate or 100-200 pounds of dry material.

## **Notification Requirements**

Three States (Iowa, Minnesota and Nevada) have specific notification requirements; see Appendix A. These requirements involve notification of the public of the application by posting at least one sign, of a specified size, in certain locations. Several other States allow for promulgation of similar rules.

Details of individual State requirements can be found in Appendix A.

<p><b>NOTE:</b> In addition to State pesticide regulation, States may have other laws that regulate the storage, use, and disposal of pesticides such as water quality, water use, and hazardous waste regulations.</p>
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The EPA has requested States to develop a generic State management plan for groundwater protection. This plan will serve as a template for development of pesticide specific management plans (PSMP) for those pesticides where monitoring results identify particular chemicals or locations with degraded water quality due to the use of pesticides. A few States have completed their generic plans, and most expect them to be completed soon. It will then take at least 1 to 2 years before monitoring results are obtained and chemical specific regulations are enacted.

### 2.3 INTERAGENCY AGREEMENTS/COORDINATION

Because Western facilities may be located on or near tribal lands or lands owned by other Federal or State land management agencies, **it is important to inform these agencies or the tribe about any pest control activities and to honor any provisions in Interagency Agreements.** These agreements may have specific restrictions on pesticide use. Please contact any potentially affected or nearby tribes or agencies before applying pesticides.

<b>Absorption</b>	Penetration of a substance from the surface to below the surface.
<b>Acaricide</b>	A pesticide that kills or inhibits mites and ticks.
<b>Activator</b>	A material added to a pesticide to increase, either directly or indirectly, its toxicity.
<b>Active ingredient</b>	The chemical compound in a product responsible for the desired effects, or the ingredient or ingredients which are capable in themselves, of preventing, destroying, repelling or mitigating insects, fungi, rodents, weeds, or other pests in the case of an economic poison.
<b>Acute toxicity</b>	A measure of the amount of a substance, as a single dosage or concentration, required to kill test animals of several species.
<b>Adjuvant</b>	Any substance in a pesticide spray mixture that enhances the effectiveness of the pesticide.
<b>Arsenicals</b>	Pesticides containing arsenic.
<b>Avicide</b>	A pesticide that kills or inhibits birds.
<b>Bait Shyness</b>	The tendency for rodents, birds, or other pests to avoid a poisoned bait.
<b>Biological control</b>	The use of live organisms to control a pest species.
<b>Broadcast application</b>	An application over an entire area.

<b>Buffer strip</b>	A protective area adjacent to an area requiring special attention or protection.
<b>Carbamate</b>	A synthetic organic pesticide containing carbon, hydrogen, nitrogen, and sulfur.
<b>Carrier</b>	The liquid or solid material added to a chemical compound to facilitate its field application; an inert material which when used with a pesticide improves the physical dispersion of the pesticide.
<b>Chemical name</b>	A name that indicates the chemical composition and/or chemical structure of the compound being discussed.
<b>Chlorinated hydrocarbon</b>	A synthetic organic pesticide that contains chlorine, hydrogen, and carbon. Same as organochloride.
<b>Chronic toxicity</b>	The results produced in test animals by long-term exposure to a dose or concentration estimated to approximate the exposure to be encountered through use of the test substance in a prescribed manner.
<b>Degradation</b>	The process by which a chemical is decomposed or broken down into less complex compounds or elements.
<b>Drift</b>	The movement of air-borne particles from the intended contact area to other areas.
<b>Dry flowable (DF)</b>	A highly concentrated granule designed to break up and disperse in water in a manner similar to that of wettable powders. Requires agitation.
<b>Dry soluble (DS)</b>	A dry formulation that forms a solution when added to water.

<b>Emulsifiable concentrate (EC)</b>	A single-phase liquid system that forms an emulsion when mixed with water. Requires mild agitation to maintain the emulsion.
<b>Emulsion</b>	A mixture in which one liquid is suspended as minute globules in another liquid; e.g., oil/water emulsion.
<b>Ester</b>	A compound formed by the reaction of an acid and an alcohol; a type of herbicide compound.
<b>Formulation</b>	A term used synonymously with product. It contains the active pesticide, the carrier, and other additives required to make the pesticide ready for application.
<b>Fumigant</b>	Chemical used in the form of a volatile liquid or a gas to kill insects, nematodes, fungi, bacteria, seeds, roots, rhizomes, or entire plants; usually applied in an enclosure of some kind or in the soil with a plastic or water surface seal.
<b>Fungi</b>	All nonchlorophyll bearing plants of a lower order than mosses and liverworts; for example: rusts, smuts, mildews, molds.
<b>Fungicide</b>	A pesticide that kills or inhibits fungi.
<b>Fungistat</b>	A chemical that keeps fungi from growing.
<b>Granules</b>	Low concentration (usually 5 to 15 percent active ingredient) designed to be spread dry. In the form of ready to use particles that are much larger than dust particles, which minimizes drift problems.
<b>Groundwater</b>	Subsurface water in the zone of saturation. The top surface of the groundwater is the “water table”.

<b>Half-life</b>	The amount of time required for half of a compound to degrade.
<b>Herbicide</b>	A pesticide used for killing or inhibiting plant growth.
<b>Inert ingredients</b>	All ingredients which are not “active” (see Active Ingredient).
<b>Insecticide</b>	A pesticide intended to kill or inhibit insects.
<b>Integrated Pest Management</b>	The selection, integration, and implementation of treatment methods based on predicted ecologic, sociologic, and economic effects.
<b>Label</b>	All printed material on or attached to a pesticide container as required by law.
<b>Leaching</b>	Movement of a substance downward in solution through the soil.
<b>Micro-encapsulation</b>	A solid or liquid dispersed into very fine particles and surrounded by a polymer skin for slow release.
<b>Miscible liquids</b>	Two or more liquids capable of being mixed and remaining mixed under normal conditions.
<b>Nematocide</b>	A pesticide designed to kill or inhibit nematodes.
<b>Nematodes</b>	A cylindrical, usually microscopic, parasitic worm which attacks plants or animals, or may be free-living in soil or water.
<b>Nitrophenols</b>	Synthetic organic pesticides containing carbon, hydrogen, nitrogen, and oxygen.

<b>Nontarget component</b>	That which is not expected or planned to be affected by the treatment.
<b>Organochlorine</b>	Same as chlorinated hydrocarbon.
<b>Organophosphate</b>	A synthetic organic pesticide containing carbon, hydrogen, and phosphorus; parathion and malathion are examples.
<b>Pellet</b>	A dry formulation of pesticide and other components in discrete particles usually larger than 10 cubic centimeters.
<b>Pest</b>	Each of the following forms of plant and animal life and viruses is declared to be a pest under the Federal Insecticide, Fungicide, and Rodenticide Act when it exists under circumstances that makes it injurious to plants, humans, domestic animals, other useful vertebrates, useful invertebrates, or other articles or substances: mammals; birds, fishes; amphibians, reptiles; aquatic and terrestrial invertebrates; roots and other plant parts growing where not wanted; and viruses other than those on or in living humans or other animals.
<b>Pesticide</b>	A chemical that kills or inhibits pests (plants or animals).
<b>Prebaiting</b>	Placing untreated bait in an open trap or scattering untreated bait several days before placing the treated (toxic) bait; done to provide more consistent acceptance of bait by the target pest.
<b>Propellants</b>	In pressurized insecticide products, the material producing the force required to dispense the active ingredient from the container.
<b>Rate</b>	Rate refers to the amount of active ingredient or acid equivalent of a pesticide applied per unit area (such as one

acre). Rate is preferred to the occasionally used terms dosage and application.

<b>Restricted Use pesticide</b>	A pesticide that may only be used under certain conditions and may only be applied by certified applicators.
<b>Rodenticide</b>	A pesticide intended to kill or inhibit rodents.
<b>Selective pesticide</b>	A chemical that is more toxic to some species (plant, insect, animal, microorganisms) than to others.
<b>Soil injection</b>	Mechanical placement of a pesticide beneath the soil surface with a minimum of mixing or stirring.
<b>Soil sterilant</b>	A chemical that prevents the growth of plants, microorganisms, etc., when present in soil. Soil sterilization may be temporary or relatively permanent, depending on the nature of the organism being controlled and application rate.
<b>Spot treatment</b>	The application of a pesticide to selected individual plants or animals.
<b>Spray drift</b>	The movement of airborne spray particles from the intended application area.
<b>Spreader</b>	Substance which increases the area that a given volume of liquid will cover on a solid or another liquid.
<b>Sticker</b>	A material added to a pesticide to increase its adherence.
<b>Surfactant</b>	A material which facilitates and accentuates the emulsifying, dispersing, spreading, wetting, and other surface-modifying properties of the formulations.

<b>Tank-mix combination</b>	Mixing of two or more pesticides or agricultural chemicals in a spray tank at application time.
<b>Target pest</b>	The pest at which a particular pesticide or other control method is directed.
<b>Termiticide</b>	A pesticide intended to kill or inhibit termites.
<b>Toxicity</b>	The capacity of a substance to produce injury.
<b>Toxicity Characteristic Leaching Procedure (TCLP)</b>	A test done to determine if a waste is considered to be a “hazardous waste” because of its toxicity related to certain chemical constituents.
<b>Vapor drift</b>	The movement of pesticide vapors from the area of application.
<b>Volatile</b>	A compound is volatile if it evaporates at ordinary temperatures on exposure to air.
<b>Water dispersed granule</b>	See Dry Flowable.
<b>Wettable powder (WP)</b>	A finely divided dry formulation that can be readily suspended in water. Requires agitation.
<b>Wetting agent</b>	Substance that reduces interfacial tensions and causes spray solutions or suspensions to make better contact with treated surfaces. (See surfactant.)
<b>Wood preservatives</b>	Chemicals applied to wood surfaces to prevent decay and deterioration, often caused by fungus.

#### 4.1 WHAT RODENTS REQUIRE CONTROL?

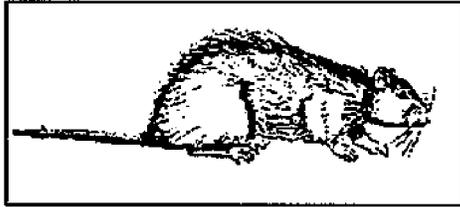
Rodents are small to medium-sized gnawing mammals that are widely and abundantly distributed throughout the country. Rodents of concern at Western transmission facilities include:

- **Squirrels**
- **Prairie Dogs**
- **Pocket Gophers**
- **Marmots**
- **Mice**
- **Voles**
- **Rats**

In addition to these rodents, **skunks** and **rabbits** may also require control. Skunks and rabbits are small mammals that do not fall under the rodent classification; however, their characteristics as pests and their control are similar to the larger rodents and are therefore discussed in this section. Although all of the rodents listed are relatively familiar, there may be more difficulty in identifying mice, voles, and rats. Figure 4-1 provides sketches and distinguishing characteristics to aid in this identification.

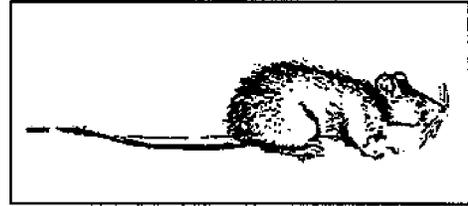
Some species of the above-listed rodents are considered to be endangered or threatened, of special concern, or otherwise “protected” as game species. It is therefore important that the State agency responsible for wildlife (usually the State Division of Wildlife, Department of Natural Resources, or Fish and Game Agency) be consulted before any control program is initiated, unless the pest is a house mouse, rat, or marmot. In the case of prairie dogs, there is also concern about black-footed ferrets that are endangered and which are found in association with prairie dog towns.

**NORWAY RAT - *Rattus norvegicus***



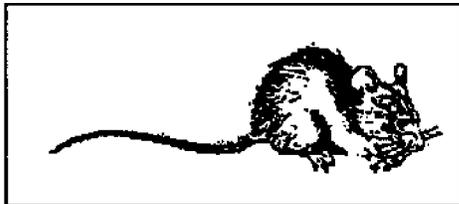
**AVERAGE WEIGHT: 10-17 OUNCES**  
**TOTAL LENGTH: 13-18½ INCHES**  
**BODY: HEAVY, THICK WITH LONG, BLUNT HEAD. EARS AVERAGE SIZE, CLOSE TO BODY. EYES SMALL. NOSE BLUNT.**  
**TAIL: SHORTER THAN HEAD AND BODY, LIGHTER COLOR ON UNDERSIDE.**  
**COLOR: BROWN TO BLACK ON BACK, AND SIDES, GRAY TO YELLOW-WHITE ON BELLY.**

**ROOF RAT - *Rattus rattus***



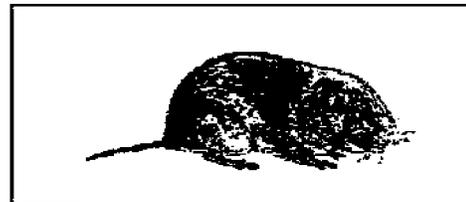
**AVERAGE WEIGHT: 6-12 OUNCES**  
**TOTAL LENGTH: 14-18 INCHES**  
**BODY: SLENDER, WITH LONG, POINTED MUZZLE. LARGE, PROMINENT EARS. LARGE EYES.**  
**TAIL: LONGER THAN HEAD AND BODY. UNIFORM COLOR TOP AND BOTTOM.**  
**COLOR: TAWNY BLACK WITH GRAYISH WHITE UNDERPART.**

**HOUSE MOUSE - *Mus musculus***



**AVERAGE WEIGHT: ½-¾ OUNCES**  
**TOTAL LENGTH: 5½-7½ INCHES**  
**BODY: AVERAGE WITH SMALL HEAD AND SMALL FEET. LARGE PROMINENT EARS.**  
**TAIL: AVERAGE**  
**COLOR: DUSKY GRAY ON BACK, LIGHTER GRAY ON BELLY.**

**MEADOW VOLE - *Microtus pennsylvanicus***



**AVERAGE WEIGHT: 1-2½ OUNCES**  
**TOTAL LENGTH: 4.9-7.7 INCHES**  
**BODY: LONG FUR WITH A COARSE TEXTURE. LARGE EARS AND EYES.**  
**TAIL: MORE THAN TWICE THE LENGTH OF THE HIND FEET. DUSTY COLORED ON TOP AND PALE UNDERNEATH.**  
**COLOR: DARK BROWN MIXED WITH BLACK ON THE BACK, DUSKY GRAY ON THE BELLY.**

**DISTINGUISHING CHARACTERISTIC OF COMMON RODENTS**

VMPO1

FIG. 4-1

## FIGURE 4-2

### **BLACK-FOOTED FERRET SURVEY REQUIREMENTS - PRAIRIE DOG CONTROL USING PESTICIDES**

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A black-footed ferret survey must be conducted prior to use of pesticides for prairie dog control unless one of the following is true:

1. There are fewer than 8 prairie dog holes per acre, and therefore the control site does not meet the definition of a prairie dog town.
2. The prairie dog town is less than 80 acres (black-tailed prairie dogs) or 200 acres (white-tailed prairie dogs), and there is no other prairie dog town within 4.3 miles of the edge of the treatment area.
3. There is a high degree of urbanization in the immediate area of the control site.
4. The area of control site is predominantly cultivated, thereby isolating the control site from other ferret-support habitat.
5. There has been a Black-footed ferret survey conducted in the area which you plan to control, by a trained biologist, with results that no ferret exists there.

If you believe one of these five mentioned circumstances is true of the area to be controlled, you can then contact the U.S. Fish and Wildlife Service and request a letter authorizing you continue your prairie dog control program. For further information regarding the Black-footed ferret survey, contact the regional office of the U.S. Fish and Wildlife Service, Office of Endangered Species.

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Figure 4-2 lists the steps that must be taken specifically to protect the black-footed ferret. Also there are new limits on the use of kill traps in Arizona. Check with local agencies in Arizona if kill traps are being considered as the preferred control method.

## **4.2 METHODS OF CONTROL**

Table 4-1 lists the target rodent or small mammal pests and optional method(s) for their control. Selection of the appropriate method of each pest should be made based on the species involved and the site-specific conditions and should be done in consultation with the local State Cooperative Extension Service, the USDA Animal Damage Control officer, and/or a selected pest control contractor. As previously mentioned, the State wildlife agency should also be contacted to identify any protected species. Table 4-1 provides comments following each option which present information that should be considered in selecting and implementing the control method. Two good references for information on sources for exclusion products and other control methods are Olkowski et al. (1994) and Southern Engineering Company (1996).

Note that whenever a Restricted Use rodenticide is selected as the control method, Western personnel will contract with a certified contractor to apply the pesticide. Western employees will only use those rodenticides that are available “over-the-counter” for general use by non-certified applicators.

## **4.3 TRANSFER OF DISEASES**

In the last few years there has been a great deal of publicity about non-occupational exposures to the hantavirus. Much of the initial focus concerned the Four Corners area (Colorado, New Mexico, Arizona, and Nevada). Subsequent testing has shown the virus exists in a wide geographic area which includes much of Western’s service area. The virus is typically carried by the deer mouse, commonly known as the field mouse, and is transmitted through the urine and/or feces of the rodent. Individuals who have contracted the viral disease typically were found to live near or have been exposed to the dust from a rodent-infested environment.

The keys to controlling exposure are to eliminate conditions that attract the rodent and to prevent the inhalation of the potentially contaminated dust during control building

work. Detection of the virus in test results can be inconclusive. Exposure to the virus can be eliminated through good personal hygiene and the use of the appropriate personal protective equipment (PPE). For more details see Appendix B.

TABLE 4-1

RODENT CONTROL METHODS

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
<p>Prairie Dogs</p>	<ul style="list-style-type: none"> <li>• <u>Shooting</u> - for small colonies only; may induce bait shyness; <b>Contractor only option</b></li> <li>• <u>Relocation</u> of colony - (1) trapping, removal - small colonies only; (2) vacuuming and removal - Possible options if local animal protection group or public has an interest/concern. See "Additional Comments" and Appendix L for information on vacuuming.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Poison Grain Baits and Pellets</u> - e.g., zinc phosphide <u>*Restricted Use - Contractor Application</u> <ul style="list-style-type: none"> <li>- effective only when green grass is dry/dormant - fall baiting most successful. Application period, location, and frequency may be restricted. CAUTION: Poisonous to <u>all</u> animals.</li> </ul> </li> </ul> <hr/> <ul style="list-style-type: none"> <li>• <u>Fumigants:</u> <ul style="list-style-type: none"> <li>(1) Gas Cartridges - General use - usually carbon monoxide</li> <li>(2) Aluminum phosphide <u>*Restricted Use - Contractor Applied</u></li> </ul> </li> </ul> <p>Fumigants are labor intensive and hazardous to wildlife - use only on small acreages and where grain baits are prohibited by law (e.g., landscape areas). Best applied in spring.</p>	<p>Need to do survey for presence of endangered black-footed ferret <u>unless:</u></p> <ul style="list-style-type: none"> <li>• Fewer than 8 prairie dog holes/acre</li> <li>• Less than 80 acres (black-tailed) or 200 acres (white-tailed)</li> <li>• High degree of urbanization</li> <li>• Area for control isolated and cultivated</li> <li>• Black-footed ferret survey already conducted</li> </ul> <p>If one of these is true - contact FWS for letter approval. <u>For more detail - see Figure 4-2.</u></p> <p>Avoid using fumigants in burrows occupied by other wildlife - e.g., burrowing owls, rabbits, and other non-target wildlife. Owl signs include white droppings, pellets, and feathers around burrow openings.</p> <p>For vacuuming - contact Dog Gone, Cortez, CO (970-565-9878) - only company that provides this service in Western U.S. Reportedly extremely low mortality rate and high success (removal) rate. Cost competitive with live trapping for larger colonies (vacuuming - \$1,000/day). See Appendix L.</p>

**TABLE 4-1  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Pocket Gophers	<ul style="list-style-type: none"> <li>• <u>Trapping</u> - best method for small to moderate-sized fields (&lt; 50 acres). Use body-gripping traps from hardware stores; set in main tunnel or lateral near freshest mounds (see Figure 4-3). Follow trap instructions. Most successful in spring and fall.</li> <li>• <u>Exclusion</u> from <u>small</u> affected areas - use 1/4 to 1/2" mesh hardware cloth fence buried at least 18". Expensive and labor intensive.</li> <li>• <u>Flooding</u> - most effective in level fields; prevents gas diffusion; creates inhospitable environment.</li> </ul>	<p>Generally requires <u>Restricted Use Pesticide - Contractor Applied</u> via hand baiting, mechanical burrow builder/baiting. Ex:</p> <ul style="list-style-type: none"> <li>- Strychnine</li> <li>- Zinc phosphide</li> <li>- Chlorophacinone (Rozol)<sup>®</sup></li> </ul> <p>Rozol<sup>®</sup> Pocket Gopher Bait (EPA Reg. No. 7173-184) is not labeled as a Restricted Use Pesticide. Contains chlorophacinone in a 0.005% concentration. If selected for use, follow label instructions.</p>	<p>If using rodenticide (contractor application), be sure care is taken to protect non-target animals.</p> <p>Fumigants are generally not successful - gophers sense gas and plug tunnels, or fumigants disperse into soil, especially if it is dry.</p> <p>RO-PEL<sup>®</sup> is a contact animal repellent that is reported to repel gophers. See Appendix C.</p>
Marmots, Rabbits	<ul style="list-style-type: none"> <li>• <u>Exclusion</u> - bury rodent-proof fencing around yard at least 18 inches deep and seal any openings into yard.</li> <li>• <u>Trapping</u> - Use live-catch traps.</li> <li>• <u>Vacuuming</u> - Dog Gone (See Appendix L) has had success with removal of marmots and rabbits found in old prairie dog burrow systems.</li> </ul>	<p><u>Fumigants</u>: (Marmot only):</p> <ul style="list-style-type: none"> <li>• <u>Gas cartridges</u> - General use - usually carbon monoxide</li> </ul> <p>Fumigants are labor intensive and hazardous to wildlife - use only on small acreages and where grain baits are prohibited by law (e.g., landscape areas). Best applied in spring.</p>	<ul style="list-style-type: none"> <li>• Use RO-PEL<sup>®</sup> for control of marmot and rabbit damage. See Appendix C.</li> <li>• Other rabbit repellents are also available: Bonide Chemical Co, Ani-Pel Silviculture Ltd. - check with State/local wildlife agency.</li> <li>• Contact State Game and Fish Agency regarding handling and transport of trapped animals.</li> </ul>

**TABLE 4-1  
(Continued)**

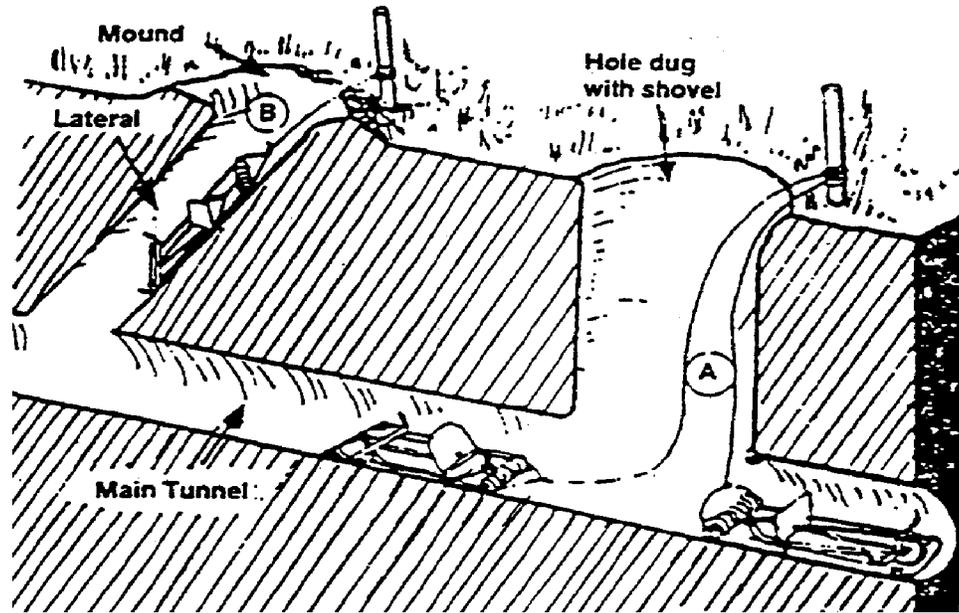
Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Tree Squirrels	<ul style="list-style-type: none"> <li>• <u>Exclusion</u> - from affected buildings - use sheet metal or wire hardware cloth; trim branches that provide access.</li> <li>• <u>Trapping</u> - use live-catch traps (e.g., Havahart®, Tomahawk®) - 7"x7"x30". Place on rooftops, limbs. Prebait/bait with peanut butter, nut meats, sunflower seeds, raisins.</li> </ul>	Generally, there are no rodenticides registered for use against tree squirrels.	<p>Naphthalene (moth balls) may temporarily discourage squirrels from entering enclosed spaces. Place 5 lbs. of moth balls in stockings and suspend for ea. 2000 cu.ft. of space. After squirrels are repelled, use <u>exclusion</u> techniques.</p> <p>RO-PEL® is a contact animal repellent that is reported to repel squirrels. See Appendix C.</p>
Skunks	<ul style="list-style-type: none"> <li>• <u>Prevention</u> - best control. Remove lumber, junk piles; store garbage in tightly sealed cans; clean up refuse. Control grubs (a food source) using insecticides.</li> <li>• <u>Exclusion</u> from buildings - install fencing that extends 1-2' below ground and seal foundation openings. <u>OR</u> Install one-way, 1/4" hardware cloth door that enables skunks to get out but not re-enter - e.g., have door extend outward at base at a right angle for about 6", so that skunk's weight prevents re-entry.</li> <li>• <u>Trapping</u> - use 7"x7"x30" live traps baited with peanut butter; locate near den entrance and cover sides with tarp. May need to destroy (not relocate) skunk - check with local Animal Control officer.</li> </ul>	Presently, there are no approved pesticides to control skunks.	<p>Use naphthalene (moth balls) to repel skunks from under buildings; attach bags of moth balls to string to permit removal after skunk departs; then use <u>exclusion</u> techniques/seal entrance. Ammonia-soaked cloths or noise (e.g., radios) also work to repel skunks.</p> <p>Can check to see if skunk has departed by sprinkling entrance areas with flour to make direction of tracks visible - check a few hours after dark.</p> <p>Control methods which kill or injure skunks often result in odor problems.</p> <p>RO-PEL® is a contact animal repellent that is reported to repel skunks. See Appendix C.</p>

**TABLE 4-1  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Voles	<ul style="list-style-type: none"> <li>• <u>Habitat Elimination</u> - eliminate ground cover of tall grasses, weeds</li> <li>• <u>Exclusion</u> - encircle trees, shrubs with 1/4" hardware cloth or plastic mesh cylinders - install 3-6" below soil surface and at least 12" above expected snow depth</li> <li>• <u>Trapping</u> - use mouse traps placed perpendicular to runways baited with peanut butter, oats</li> </ul>	<ul style="list-style-type: none"> <li>• Zinc phosphide - <u>*Restricted Use Pesticide - Contractor Application</u> - usually hand baiting, limited to certain vole species; CAUTION: poisonous to <u>all</u> animals.</li> <li>• Diphacinone (Ramik Brown) - General Use grain bait. Possibly others available at hardware store.</li> </ul>	<p>Fumigants do not work for control of voles because their burrows are too shallow and complex.</p> <p>RO-PEL® is a contact animal repellent that is reported to repel voles. See Appendix C.</p>

**TABLE 4-1  
(Concluded)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
<p>Domestic Rats, Mice (House mouse, roof rats, Norway rats)</p>	<ul style="list-style-type: none"> <li>• <u>Exclusion</u> - Close off openings in walls, at floor/wall junctions, doors - no opening larger than 1/4" - galvanized metal, wire mesh, perforated metal, iron grills with mesh openings no larger than 1/4"; cement mortar may also be used to seal cracks, openings.</li> <li>• <u>Prevention</u> - eliminate food, harborages; keep areas clean and practice good housekeeping; eliminate water source; use rat/mouse-proof storage for foods and rat-proof garbage cans.</li> <li>• <u>Trapping</u> - use <u>snap trap</u> of appropriate size; place along walls or runways, including overhead areas. If use bait, use peanut butter, cheese, bacon, hot dogs - small amount on trigger. Check 3 times per week. Other traps may be used - check with hardware supplier. When trapping rats, may need to prebait. <u>Glue traps</u> are effective when placed in rodent's runway between their harborage area and their feeding area, but do not work well in a wet or dusty environment.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Baits</u> - granular, cereal-based bait, bait pellets, bait blocks. CAUTION: toxic to other animals, children! Often are anti-coagulants. Examples: <ul style="list-style-type: none"> <li>- Chlorophacinone (Rozol)<sup>®</sup> 0.0005% concentration</li> <li>- Diphacinone (Diphacin<sup>®</sup>, Ramik<sup>®</sup>)</li> <li>- Coumafuryl (Fumarin<sup>®</sup>, Fumasol<sup>®</sup>)</li> <li>- Pival</li> <li>- PMP (Valone)<sup>®</sup></li> <li>- Prolin</li> <li>- Warfarin (D-Con<sup>®</sup>, others)</li> <li>- Bromadiolone 0.005% concentration (Maki<sup>®</sup> mini-blocks, pellets, meal)</li> <li>- Also for rats-Quintox<sup>®</sup>.</li> </ul> </li> </ul> <p>Proper placement of bait stations very important - around exterior boundaries, property line. (Bait Safe<sup>®</sup> bait station specifically made to fit to wall.) Read label and follow instructions.</p> <ul style="list-style-type: none"> <li>• <u>Tracking Powders/Toxicants</u> - dust formulations placed in runways - may be <u>*Restricted Use - Contractor Application</u>; Examples: <ul style="list-style-type: none"> <li>- Antu</li> <li>- Arsenic trioxide</li> <li>- Vacor</li> <li>- Fluoroacetamide</li> <li>- Red Squill</li> <li>- Sodium Fluoroacetate</li> <li>- Chlorophacinone (Rozol<sup>®</sup> Tracking Powder) 0.2% concentration</li> </ul> </li> </ul>	<p>Can use sprinkled talcum powder to observe tracks and document presence of runways.</p> <p>If have problem with burrowing rats, call contractor - consider fumigation with calcium cyanide, baiting.</p> <p>Maki<sup>®</sup> products do not have associated secondary kill problems - i.e., these products will kill only the target mice or rats and not the animals that eat the dead mice or rats.</p> <p>RO-PEL<sup>®</sup> is a contact animal repellent that is reported to repel mice and rats. See Appendix C.</p> <p>If an anticoagulant (Maki<sup>®</sup> and Rozol<sup>®</sup>) rodenticide is accidentally ingested, the antidote is vitamin K<sub>1</sub>.</p> <p>The Rozol<sup>®</sup> tracking powder is 40 times more toxic than the Maki<sup>®</sup> and Rozol<sup>®</sup> baits.</p>



METHODS OF PLACING GOPHER TRAPS INTO BURROW SYSTEMS: (A) PLACE TWO TRAPS SET IN OPPOSITE DIRECTIONS IN MAIN TUNNEL; (B) SET SINGLE TRAP IN LATERAL TUNNEL FROM WHICH SOIL PLUG HAS BEEN REMOVED. WIRE EACH TRAP TO A STAKE.

SOURCE: COLORADO DEPT. OF AGRICULTURE, 1992.

TRAPPING POCKET GOPHERS

VMP03

FIG. 4-3

## 5.1 WHAT BIRDS REQUIRE CONTROL?

Generally, birds are not thought of as “pests.” However, several species of birds can cause major problems related to roosting, defecation, transfer of diseases, and destruction of wood poles and structures. The birds of concern at Western’s transmission facilities are primarily **pigeons** and **woodpeckers**.

Pigeons are not a protected species, but woodpeckers are protected by the Federal Migratory Bird Treaty Act and possibly other similar State laws. A permit must be obtained from the U.S. Fish and Wildlife Service (State Field Office) and possibly the State wildlife agency, before “taking” any woodpecker. Generally, all birds except pigeons, starlings, and sparrows are protected by State and Federal laws, so if there is a problem with other bird species, be sure to check with the U.S. Fish and Wildlife Service (USFWS) and the appropriate State agency before initiating any control actions.

## 5.2 METHOD OF CONTROL

Table 5-1 lists the target bird pests and optional method(s) for their control. Selection of the most appropriate method should be made based on the bird species involved and the site-specific conditions, and should be done in consultation with the local State Cooperative Extension Service, the USDA Animal Damage Control officer, and/or a selected pest control contractor. As previously mentioned, permits are required before initiating control actions for protected species. The comments following each option on Table 5-1 present information that should be considered in selecting and implementing the control method. There are numerous nonchemical methods available for control of pigeon and woodpeckers, and they should be given preference over the use of avicides, especially in urban areas or where nontarget wildlife could be affected. Good references for sources of exclusion materials are Southern Engineering Company (1996) and Nixalite of America, Inc. (1-800-624-1189, or <http://www.nixalite.com>). Appendix L provides some information on the Nixalite bird (and animal) control products.

TABLE 5-1

BIRD CONTROL METHODS

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Woodpeckers	<ul style="list-style-type: none"> <li>• <u>Visual Repellents</u> - seal/cover large holes (holes are visual attractants); use <u>hawk silhouette mobiles</u>, <u>shaving mirrors</u>, <u>pinwheels</u>, <u>plastic or foil strips</u>, <u>aluminum pie tins</u>, or <u>owl effigies</u> to frighten woodpeckers away. Can cut plastic strips from from garbage bags; aluminum foil strips - 1 1/2" wide and 2-3' long. Purchase owl effigies at garden, sporting good, hunting store. May need to use two or more of these devices simultaneously when woodpeckers are persistent.</li> <li>• <u>Loud Noises</u> - banging pots and pans, firing toy cap guns, yelling.</li> <li>• <u>Exclusion</u> - under eaves, attach hardware cloth or plastic netting.</li> <li>• <u>Eliminate Their Food (Insects)</u> - use insecticides and wood preservatives on wood.</li> <li>• <u>Sticky Bird Repellents</u> - Tanglefoot® (see Appendix L), Roost-No-More® - applied to wood may discourage woodpeckers; may stain underlying wood.</li> <li>• <u>Avoid use of wood</u> - use alternate construction materials</li> </ul>	None recommended.	<p>Few chemicals that have objectional tastes and odors are effective for repelling woodpeckers; none are currently registered for that use.</p> <p>RO-PEL® is a contact bird repellent that is reported to repel woodpeckers - See Appendix C.</p>

**TABLE 5-1  
(Concluded)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Pigeons	<ul style="list-style-type: none"> <li>• <u>Exclusion</u> - place 1/2 - 1" hardware cloth or plastic netting over eaves, windows, doors, and other openings.</li> <li>• <u>Habitat Modification</u> - Alter angle of roosting ledges to 45° or more with sheet metal or wood. Place porcupine wires (Nixalite® or Cat Claw®) on ledges or ridges of buildings to prevent roosting (See Appendix L). Place sticky materials (Roost-No-More®, Bird Tanglefoot®) on ledges to discourage roosting. Remove any grain or other food source and sources of water.</li> <li>• <u>Nest Removal</u> - remove nests and destroy young; inaccessibility of nests may make the cost/benefit ratio of this option unattractive.</li> <li>• <u>Shooting</u> - if local ordinances allow; effective only for scattered individuals or small flocks. <b>Contractor only option.</b></li> <li>• <u>Trapping</u> - large, walk-in traps with tunnel entrances are more effective. Bait with whole or coarse-cracked corn, wheat, or milo. Water should be in trap. Heavy prebaiting may be needed.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Chemical Frightening Agent</u> - Avitrol® (4-aminopyridine) - *<u>Restricted use pesticide - Licensed Contract Applicator</u>  Birds die and display distress behaviors which frighten other members of flock away. Avoid use in urban areas. Prebait with whole kernel corn, then use treated corn.</li> <li>• <u>Toxic Perches</u> - "Rid-a-Bird®" perches contain contact poisons (fenthion or endrin). Should not be used outdoors because of problems with rain and hazards to non-target birds. Also birds killed with these can be secondarily toxic to birds of prey and other animals if consumed.</li> </ul>	<p>Noisemaking devices, ultrasonic sound, revolving lights, and rubber snakes have little permanent effect.</p> <p>Olfactory repellents are ineffective in outdoor areas.</p> <p>Can consider use of a chemosterilant (Ornitrol) that inhibits embryo formation without harming adults.</p> <p>Avoid contact with dry, dusty droppings - wear protective equipment/clothing. Ectoparasites, made homeless when pigeons are removed, may migrate into areas where humans work. Prevent this by spraying or dusting nesting/roosting areas with an acaricide, following label directions.</p>

## 6.1 WHAT INSECTS REQUIRE CONTROL?

Insects that create hazardous or nuisance conditions and damage structural integrity of buildings are considered pests and require control. These insects or insect-like organisms that are of primary concern at Western's transmission facilities include:

- **Cockroaches**
- **Flies**
- **Mosquitos**
- **Termites**
- **Fleas**
- **Ants**
- **Bees**
- **Wasps**
- **Mites**
- **Spiders** (not a true insect)
- **Ticks** (not a true insect)
- **Centipedes** (not a true insect)
- **Millipedes** (not a true insect)

Figure 6-1 is provided to show the primary differences between ants and termites.

## 6.2 METHODS OF CONTROL

Most insect problems at Western facilities are minor ones that can be handled by Western employees using **non-chemical/preventative measures**, coupled with application of "**over the counter**" **insecticides** purchased at hardware or garden stores. Generally, these products will come in a "ready-to-use" formulation or require use of a hand sprayer or other hand-held applicator. In all cases, the label application instructions and safety precautions should be carefully followed. Good references for information on sources and types of non-chemical control measures

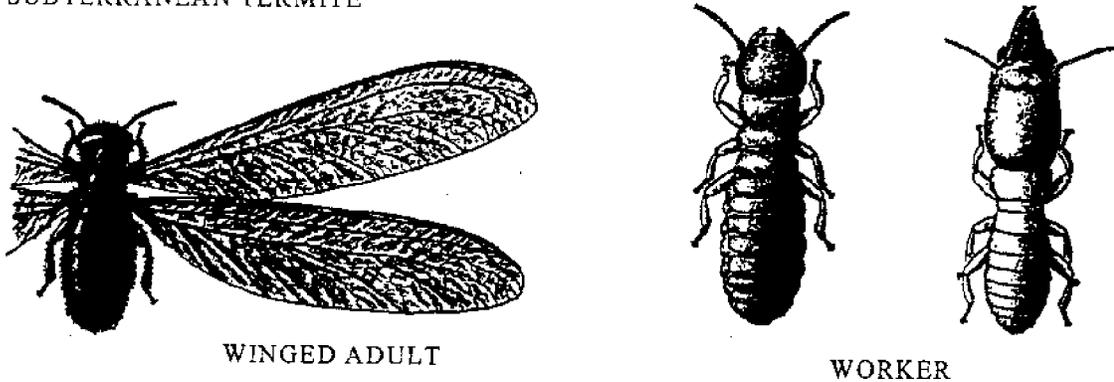
**CARPENTER ANT**



**BODY** HARD-BODIED DARK-COLORED, ABDOMEN CONSTRICTED AT BASE. FIRST ABDOMINAL (OR 1ST 2 SEGMENTS) NODELIKE OR WITH A DORSAL HUMP.  
**ANTENNAE:** 6-13 SEGMENTED, STRONGLY ELBOWED, 1ST SEGMENT QUITE LONG.  
**TARSI (LEGS):** 4 - SEGMENTED.

QUEENS AND MALES USUALLY WINGED, THE WORKERS WINGLESS, FRONT WING LARGER THAN BACK WING.

**SUBTERRANEAN TERMITE**



**BODY** SMALL, SOFT BODIED, USUALLY PALE.  
**ANTENNAE:** GENERALLY SHORT THREAD- OR BEADLIKE.  
**TARSI (LEGS):** 4 - SEGMENTED.

WINGED OR WINGLESS. WINGED FORMS WITH 2 PAIRS OF WINGS SIMILAR IN SIZE AND SHAPE, LONG AND NARROW. AT REST, WINGS HELD FLAT OVER ABDOMEN. MOUTH PARTS CHEWING.

SOURCE: PETERSON FIELD GUIDE - INSECTS 197

**DISTINGUISHING CHARACTERISTIC OF ANTS AND TERMITES**

VMPO2

FIG. 6-1

for various insects include Olkowski et al. (1994), plus the Integrated Pest Management Network on the Internet (<http://www.reeusda.gov/agsys/nipmn/index.htm>).

If there is a major problem requiring **widespread treatment**, treatment for **termites**, or any need to use **Restricted Use pesticides**, then a qualified insect control contractor should be used. Those termiticides that are approved for use by Western contractors are discussed in Western's Building Construction Specifications (Appendix E) and include bifenthrin (Biflex TC<sup>®</sup>), chlorpyrifos (e.g., Dursban TC<sup>®</sup>, Equity<sup>®</sup>); permethrin (Dragnet FT<sup>®</sup>, Torpedo<sup>®</sup>); cypermethrin (Prevail FT<sup>®</sup>, Demon TC<sup>®</sup>), and fenvalerate (Tribute<sup>®</sup>). Tables 6-1 and 6-2 list these termiticides (except Biflex TC<sup>®</sup> and Equity<sup>®</sup>) and compare how long they last. Although these figures indicate that, on average, chlorpyrifos lasts longer than the other active ingredients in most locations, the data indicates that permethrin may last longer in the high temperatures of other southwestern deserts in Western's service area. If a chlorpyrifos product is chosen and odor is of concern (e.g., manned facility), Equity<sup>®</sup> is considered a low odor termiticide. Specimen labels for Equity<sup>®</sup>, Dursban TC<sup>®</sup>, Dragnet FT<sup>®</sup>, Prevail FT<sup>®</sup>, and Biflex TC<sup>®</sup> are provided in Appendix D.

Another relatively new option available since 1995 is a colony elimination system known as the Sentricon<sup>®</sup> System, available from Dow Elanco. A small block of wood is placed in bait tubes spaced throughout the affected structure. Monthly monitoring detects the presence of a colony. Then, a growth-regulating bait (Recruit II<sup>®</sup>) is placed in the bait tube. The growth regulator (hexaflumeron) prevents the molting process in termites, and they eventually die. Colony elimination will be slower than with direct pesticide application, but may occur as quickly as 3-5 months after termites enter the bait tubes. Costs for this system are comparable to those of the usual chemical control methods. Sentricon<sup>®</sup> uses very little chemical, is reportedly effective against subterranean termites, and very safe. It is only available to applicators who have met the training requirements and standards established by Dow Elanco, and regular monitoring is required. A specimen label for the termite bait used in this system (Recruit II<sup>®</sup>) is provided in Appendix D.

Effective insect control is the result of a combination of practices including sanitation and compliance with accepted “good practices” of the pest control industry. This includes the elimination of attractants, breeding places, hiding places or harborage to supplement an insecticide control program. Insects that can be kept outside through the use of screens, self closing doors, proper placement of lights, and use of traps will not need to be controlled inside with insecticides.

The best and most effective insect control will be obtained if the following steps are followed:

- Identify the pest.
- Locate and inspect infested site.
- Determine if sanitation, mechanical devices and other measures to reduce use of chemicals can be used (may need to consult with an insect control contractor).

Determine what labeled pesticides are available for the pest and conditions of use. Use a combination of treatments or techniques where most effective. (Use contractors to apply termiticides or any Restricted Use pesticides, or where problem is widespread.)

- Select pesticide and application method that will not leave an oily or objectional residue or odor.
- Follow good sanitary and housekeeping practices.
- Follow safety precautions.

Table 6-3 lists target insects and optional methods for their control.

**TABLE 6-1  
TERMITICIDE LONGEVITY - SLAB TESTS**

Trade Name	Termiticide at Common Use Rate	Location and Years of 100% Control						
		FL	MS	MS	AZ	SC	MD	AVG
Dursban TC	1.0% Chlorpyrifos (DowElanco)	9	11	21	6	12	17	11.7
Dragnet FT	0.5% Permethrin (FMC)	4	5	--	13	5	--	6.8
Torpedo	0.5% Permethrin (Zeneca)	6	4	--	11	1	--	5.5
Prevail FT*	0.25% Cypermethrin (FMC)	9	3	--	4	4	--	5.0
Tribute	0.5% Fenvalerate (Roussel Uclaf)	3	7	--	12	4	--	6.5

Adapted from: Dow Elanco 1993.

\*Prevail FT is labeled for pretreatment only.

Pre-construction treatments are defined to include treatments made during all phases of construction up to when the concrete slab is poured.

**TABLE 6-2**

**TERMITICIDE LONGEVITY - GROUND BOARD TESTS**

Trade Name	Termiticide	Location and Years of 100% Control					
		FL	MS	AZ	SC	MD	AVG.
Dursban TC	1.0% Chlorpyrifos (DowElanco)	7	4	2	8	18	9.8
Dragnet FT	61.0% Premethrin (FMC)	6	2	9	1	--	4.5
Torpedo	1.0% Permethrin (Zeneca)	5	2	8	1	--	4.0
Prevail FT*	1.0% Cypermethrin (FMC)	5	5	5	5	--	5.0
Tribute	1.0% Fenvalerate (Roussel Uclaf)	4	4	7	6	--	5.3
Demon TC	1.0% Cypermethrin (Zeneca)	5	5	5	5	--	5.0

Adapted from: Dow Elanco 1993.

\*Prevail FT is labeled for pretreatment only.

**TABLE 6-3**

**INSECT CONTROL METHODS**

Pest	Non-Chemical Methods	Pesticides	Additional comments
Cockroaches	<ul style="list-style-type: none"> <li>• <u>Prevention</u> - eliminate preferred harborage conditions (food, moisture, warmth):               <ul style="list-style-type: none"> <li>- Store food in tightly closed containers</li> <li>- Store organic waste/garbage in tightly closed plastic or metal containers</li> <li>- Eliminate water sources through repairs and barriers                   <ul style="list-style-type: none"> <li>- fix leaks, provide drainage or ventilation</li> </ul> </li> <li>- Maintain clean conditions.</li> </ul> </li> <li>• <u>Exclusion</u> - seal cracks, crevices with caulk, paint, etc., screen vents and windows</li> <li>• <u>Vacuuming</u> - vacuum both insects and egg cases; then clean, seal cracks.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Dusts</u> Boric acid - takes 5-10 days for full effect - examples: Roach-Prufe®  Also - diatomaceous earth, silica gels - these abrade roach external skeleton e.g. Shell Shock®; others may be combined with pyrethrins</li> <li>• <u>Baits, Baitstations</u> Hydramethylnon - Combat®, Maxforce®, Siege®. Stomach poisons. Place bait stations on edges, corners of room; near food and water sources.</li> <li>• Also - variety of Ortho® or similar products available in hardware/garden stores - e.g. Bug-B-Gon®, Home Defense Insect Killer®</li> </ul>	<p>Can also try insect growth regulator (IGR) - but must combine with other control measures. Examples:</p> <p>Torus® Gencor® Gentrol®</p>

**TABLE 6-3  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Termites	<ul style="list-style-type: none"> <li>• <u>Prevention</u> - Eliminate habitat/preferred conditions:  Reduce moisture level in wood (eliminate leaks, gutter drainage, etc.); eliminate direct contact between wood and soil-replace with concrete; remove tree stumps and other wood debris near structures. Store wood piles above ground (on blocks) and away from structures. Seal cracks, gaps in foundations, ventilate crawl spaces.</li> <li>• <u>Exclusion</u> - Install sand barrier - termites cannot tunnel through 10-16 mesh sand.</li> <li>• <u>Dig Out</u> colonies, <u>break open</u> tubes - removes termites and eliminates paths; allows natural enemies (ants) to enter. Small colonies only.</li> <li>• <u>Electrogun</u><sup>®</sup> - professional contractors only; kills dry wood termites.</li> <li>• <u>Thermal Control</u> - drywood termites - die after 35 minutes at 120°F. Involves site preparation, removal of heat-sensitive items. (Contractor only)</li> <li>• <u>Biological Control</u> - Conserve termite - eating ants (if can tolerate ants)</li> </ul>	<p>Use approved <u>termiticides</u> - see text for names, details on longevity, etc. - <u>Contractor applied only.</u></p> <p>Also consider use of less toxic alternatives: borax, dessicating dusts</p>	<ul style="list-style-type: none"> <li>• Termite control will require use of professional contractors. Should continue with <u>preventive</u> measures even after treatment is completed.</li> </ul> <p>Some new options recently available:</p> <ul style="list-style-type: none"> <li>• Sentricon system using Recruit<sup>®</sup> insect growth regulator (see text and Appendix D for more detail)</li> <li>• Premise<sup>®</sup> (imidacloprid) - much less active ingredient, effective against drywood termites.</li> </ul>

**TABLE 6-3  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Ants	<ul style="list-style-type: none"> <li>• <u>Prevention</u> <ul style="list-style-type: none"> <li>- Store food, organic wastes in tightly sealed containers; good sanitation practices.</li> <li>- For carpenter ants - eliminate source of moisture, store firewood elevated above ground, away from structures; prune trees so don't touch structures, remove tree stumps</li> </ul> </li> <li>• <u>Exclusion</u> Use sticky barriers, caulk cracks to keep out household ants</li> <li>• <u>Boiling water/soapy water</u> <ul style="list-style-type: none"> <li>- Soapy water - kill invading household ants</li> <li>- Boiling water - pour slowly over outside mounds. 20%-60% mound elimination reported.</li> </ul> </li> <li>• <u>Toleration</u> - for household ants, especially. Ants can be beneficial to soils, eat other insects.</li> <li>• For <u>carpenter ants</u> - direct nest removal, heat, etc. - similar to non-chemical methods for <u>Termites</u>.</li> </ul>	<p>Apply <u>pesticide barrier</u> to keep ants out of structure - examples:  chlorpyrifos  diazinon  propoxur  boric acid dust</p> <p>Small problems - Ortho® or similar products found in garden/hardware stores -  Bug-B-Gon®  Ant Killer Dust®  Ant-Stop®</p> <p>Also consider cyfluthrin (Tempo®) for nesting ants</p> <p><u>Baits</u> - ants consume and carry back to mound. e.g.:  - Amdro® (hydramethylnon)  - Logic® (an insect growth regulator - fire ant control)  - boric acid baits</p> <p><u>Dusts</u> - sorptive dusts or silica aerogel/pyrethrum dust - placed in cracks, crevices - e.g. -  Revenge®  Pursue®  Drione®</p> <p><u>Insecticidal Soap</u> - drench mound; will not kill all.</p>	<p>For carpenter ants - probably need to use professional Contractor.</p>

**TABLE 6-3  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Flies	<ul style="list-style-type: none"> <li>• <u>Exclusion</u> - use window, door screens, bead curtains in high traffic areas. Caulk openings.</li> <li>• <u>Prevention</u> - good sanitation - remove or cover garbage, disregard overripe fruit, dispose of any manures.</li> <li>• <u>Flypaper, traps</u> - to supplement other methods above. Avoid ones with added insecticide.</li> <li>• <u>Electrocution traps</u> -to supplement exclusion, prevention (see Additional Comments).</li> <li>• <u>Fly swatter</u> - good for minor problems indoors.</li> </ul>	<p>Use as supplement to prevention, exclusion. Spot treatments to areas of high fly activity are most efficient.</p> <p>For biting flies - insect repellent DEET (diethyltoluamide) can be effective.</p>	<p>Electrocution traps may not be very effective and may kill non-target beneficial insects.</p> <p>Avoid use of fly strips with Vapona® (dichloruos or DDVP); are highly toxic; may no longer be registered.</p>
Fleas (and Mites)	<ul style="list-style-type: none"> <li>• <u>Remove hosts</u></li> <li>• <u>Vacuum</u> affected areas regularly, especially along baseboards, edges, and heat registers. Dispose of collected material by burning or freezing first.</li> <li>• <u>Steam clean</u> affected areas indoors.</li> <li>• <u>Sanix</u>® system - releases heat that kills fleas, mites in carpet. (Available only to pest control professionals.)</li> </ul>	<ul style="list-style-type: none"> <li>• Use <u>pesticide</u> labeled for indoor flea control - chlorpyrifos, permethrin, propoxur, fenvalerate, tetramethrin, alletrin - available at hardware, pet stores. Ortho®, similar ready-to-use sprays with diazinon.</li> </ul> <p>Also - insect growth regulators Fleatrol® (methoprene), Torus® (fenoxycarb) can be applied to carpets, other infested areas</p>	<p>Generally not a problem unless have host animal in building (dogs, cats, squirrels, mice, etc.)</p> <p>For large infestations, consider professional services; try rug/steam cleaning and/or heat treatment before resorting to a pesticide.</p>

**TABLE 6-3  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Mosquitoes	<ul style="list-style-type: none"> <li>• <u>Prevention</u> - eliminate breeding ground, i.e., - any standing water. Promote good drainage, dredge or clean out ditches and gutters; remove containers that catch/trap water (e.g. buckets, old tires, cans); grade landscaped areas and use drain tiles.</li> <li>• <u>Exclusion/avoidance</u> - repair screens; use tight screens or netting. Wear light-colored clothing, tightly woven fabrics.</li> <li>• <u>Biological Control</u> - <u>Mosquito Fish</u> - stock man-made ponds with <u>Gambusia affinis</u>; (do not stock natural waters, since these fish can outcompete natural populations). Obtain mosquito fish from suppliers listed in Pest Control journals or from local mosquito control district. Some states require permits or notifications - check with State Fish and Game Agency.</li> </ul>	<p><u>Microbial insecticides</u> - Bti (<u>Bacillus thuringensis israeliensis</u>); sold as Bactimos® Teknar® Vectobac®</p> <p>Toxic only to mosquito and midge larvae. Acts as stomach poison. Available as spray or briquets - apply 1 briquet per 100 sq. ft. surface area.</p> <p><u>Insect Growth Regulator</u> - Altosid® (Sandoz product) (methoprene) - prevents adults from emerging. Packaged in slow-release briquets - one per 100-200 sq. ft. Effective for 30 days in standing water.</p> <p>For <b>ADULTS</b>: <u>Community insecticide</u> application (ground fogs) - need to coordinate with community Agency. Usually use malathion, synthetic pyrethroids.</p> <p>Also:</p> <ul style="list-style-type: none"> <li>• Treat shrubbery, shaded areas with <u>insecticide</u>: Dursban, malathion, carbaryl (Sevin®)</li> <li>• Personal <u>repellents</u> - apply to clothing - DEET, etc. Can use "Skin-So-Soft" and Citronella for short periods of relief.</li> </ul>	<p><u>Larval</u> control is really the key to mosquito control.</p> <p>Electronic "bug zappers" are not effective and kill many beneficial insects.</p> <p>Ultrasonic devices are not effective.</p>

**TABLE 6-3  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
<p>Bees, Wasps</p> <p><u>Paper Wasps:</u> Yellow jackets, hornets, polistes wasps</p> <p><u>Hunting Wasps:</u> Muddaubers Potter wasps Cicada killers</p> <p><u>Honeybees</u></p> <p><u>Other bees:</u> Bumblebees Leaf-eater bees Ground bees</p>	<ul style="list-style-type: none"> <li>• <u>Prevention</u> - remove attractive garbage, food. Put garbage in tightly sealed containers or cans with spring-loaded closure.</li> <li>• <u>Avoidance</u> - avoid areas of congregation; watch open soft drink cans; use cups with lids and straws.</li> <li>• <u>Physical control</u> <u>Traps</u> - yellow jackets - somewhat successful; contain heptylbutyrate. Available at garden/ hardware stores.</li> <li>• <u>Removal</u> - professional contractors - remove nests. Honeybees - beekeepers may do this; contact local Extension office for names.</li> <li>• <u>Tolerance</u> - if possible. Bees and wasps are beneficial as predators of pest insects or as pollinators.</li> <li>• <u>Soap and Water</u> - spray hives with mixture of dish-washing soap and water placed in reusable fire extinguisher. Can add surfactant. Suffocates the bees. May need to followup with some pesticide.</li> </ul>	<p><u>Insecticide</u> - apply to nests during late evening or cool periods in morning when bees/wasps less active. Examples:</p> <ul style="list-style-type: none"> <li>• Carbaryl</li> <li>• Diazinon</li> <li>• Propoxur (Baygon)</li> <li>• Pyrethrins, resmethrin (fast knock down) Ex - Ortho®, similar products available at garden/hardware stores: Hornet and Wasp Killer® Outdoor Insect Fogger® Wasp-Stopper® (pyrethrin and rotenone)</li> </ul> <p><u>Diazinon Baits</u> - for yellowjacket control; be careful not to expose non-target wildlife</p>	<p>Recognize nests:</p> <p><u>Paper</u> - paper wasps (yellow-jackets, hornets). These are abandoned each fall.</p> <p><u>Wax</u> - honeybees, bumblebees</p> <p><u>Mud</u> - hunting wasps</p> <p><u>Holes in ground</u> - others (plus ground-nesting yellowjackets)</p>

**TABLE 6-3  
(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
<p>Spiders (especially Black widow, Brown recluse)</p>	<ul style="list-style-type: none"> <li>• For non-poisonous species - consider <u>avoidance/ tolerance</u> - with occasional <u>cleaning of webs, vacuuming</u>. Most spiders are beneficial (eat undesirable insects) and not harmful, most are very shy and not aggressive.</li> <li>• <u>Change habitat</u> - increase light, caulk crevices, thorough and regular cleaning of floors, baseboards, etc.</li> <li>• <u>Freeze</u> likely harborages - boxes, etc. - place in bin-type freezer for 48 hours before handling, unpacking.</li> <li>• <u>Shake out</u> clothes, blankets, etc. that have been at ground level before using.</li> </ul>	<p>If must, use <u>insecticide</u> with chlorpyrifos, diazinon; Ortho® or similar products available at hardware/garden stores - Bug-B-Gon®, Home Defense Insect Killer®, etc.</p> <p>Direct spray at baseboards, foundations, corners, and other identified hiding places; avoid use of bombs.</p>	<p>Web-Away® by Nixalite - may help prevent webs from reforming (See Appendix L)</p> <p><u>Black widow spiders</u> - hour glass marking on abdomen; body ½" long.</p> <p><u>Brown recluse spiders</u> - Violin-shaped marking on top of body near head (body 1/3-1/2" long)</p> <ul style="list-style-type: none"> <li>• Monitor for their presence at night with flashlight.</li> </ul> <p>Tarantulas - generally no control needed - sweep into a dustpan, drop into a bag, and release outside.</p>

**TABLE 6-3**  
**(Continued)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Ticks	<p><u>Avoidance of habitat</u> - avoid narrow animal trails; longer grasses and brush; edges of woods, paths, and roadsides</p> <p><u>Removal of habitat</u> - Cut grass, weeds, low brush short; prune trees to allow more sunlight penetration for drier conditions. Remove woodpiles and mouse habitats.</p> <p><u>Exclusion</u> - wear protective clothing; tuck pant legs into socks, wear long-sleeved shirt, long pants.</p> <p><u>Quick Identification/Physical Removal (Body)</u> Wear light-colored clothes so can see; do frequent "tick checks" before they embed.</p> <p><u>Physical Removal</u> 1) <u>Tick Drags/Tick Flags</u> - see Olkowski et al. (1994) for details on construction. Drag white flannel cloth through infested areas, especially immediately preceding human entry. Movement of cloth simulates a host, and ticks cling to it.</p>	<p><u>Tick Repellants</u> - Wear on clothing, not skin: DEET Indalone Dimethylcarbate Dimethylphthalate Benzyl benzoate M-1960 Permethrin</p> <p>Treat clothing Thoroughly from ground to hips.</p> <p><u>Limonene/linalool or insecticidal soap</u> - kill ticks, but safe for humans, animals.</p> <p><u>Permethrin</u> (Damminix<sup>®</sup>) - most effective for use against ticks if other methods insufficient, especially in Lyme disease areas. Place in cardboard tubes where mice are likely, on a 5-10 ft. grid.</p>	<p>Biggest concern is disease transmission:</p> <ul style="list-style-type: none"> <li>- Rocky Mountain spotted fever</li> <li>- Lyme disease</li> <li>- Tick Paralysis</li> <li>- Other pathogens (up to 65 known)</li> </ul> <p>Remove ticks so that head and mouth parts do not break off and remain in skin. Exert steady and gentle pressure with tweezers. Do not twist and avoid crushing the tick. Clean site with antiseptic.</p>

**TABLE 6-3  
(Concluded)**

Pest	Non-Chemical Methods	Pesticide(s)	Additional Comments
Ticks (continued)	2) <u>Co<sub>2</sub> Traps</u> - Dry ice traps to collect or attract ticks for vacuuming, removal. May be useful in small areas. Requires that series of traps be set out in grid periodically. See Olkowski et al. (1994)		
Centipedes, millipedes	<ul style="list-style-type: none"> <li>• <u>Eliminate habitat</u> <ul style="list-style-type: none"> <li>- Remove moist, decaying leaf litter or other organic material near building foundations</li> <li>- Trim plantings around foundations to dry the soil</li> <li>- Use dehumidifier inside</li> <li>- Improve drainage outside</li> </ul> </li> <li>• <u>Exclusion</u> Caulk cracks at or near ground level.</li> <li>• <u>Tolerate</u> if possible - generally not a problem indoors.; <u>avoid</u> outdoors.</li> </ul>	If non-chemical methods not sufficient and <u>toleration</u> not possible - Use <u>insecticide</u> : Chlorpyrifos or diazinon labeled for outdoor use; apply around building foundations.	Usually control not necessary indoors - usually too dry.  Eliminate possible food and excess moisture.

## **7.1 BACKGROUND**

Western uses wood products - wood poles, crossarms, and X-braces - throughout its transmission system. Fungi attack wood, causing deterioration and potential failure of the structure. Wood preservatives include certain fungicides and other pesticides that kill fungus, insects, and other organisms that cause wood decay. New wood products purchased by Western have already been treated. However, older poles may need to be maintained by applying wood preservatives in the field.

## **7.2 WOOD PRESERVATIVES**

The chemicals most commonly used to treat wood products are **creosote, pentachlorophenol (PCP, or “penta”), water-borne arsenicals, copper naphthenate, and anhydrous disodium octaborate (boric acid)**. In the past, Western commonly used creosote and penta. Today, Western primarily uses penta and copper naphthenate. These preservatives provide good protection from decay for periods of 40 years or more. All the above preservatives, with the exception of copper naphthenate and anhydrous disodium octaborate, are **Restricted Use** pesticides and must be applied by certified applicators with current permits. Table 7-1 provides a summary of the wood preservatives used by Western, including information on product names, chemicals used, and restrictions (including restrictions for use in wetlands). The following sections provide detail about the various pesticides.

**TABLE 7-1**

**WOOD PRESERVATIVES USED BY WESTERN**

<u>Treatment Method</u>	<u>Product Example(s)</u>	<u>Chemical(s) Used</u>	<u>Restricted Use?</u>	<u>Use in Wetlands?</u>
Pastes/Greases (groundline - external decay)	CuRap 20®	Copper naphthenate, Borax (sodium tetraborate decahydrate)	No	Not where water is present - toxic to fish (See label)
Pole Wraps (groundline - external decay)	Cunap Wrap®	Copper naphthenate	No	No specific restrictions, but should not (and cannot) apply in standing water. Wrap is insoluble and leach resistant.
Liquid Preservatives Applied to Pole (above ground-external decay)	—	PCP (5%) or Copper naphthenate (2%) (in petroleum carrier)	PCP - Yes Copper Naphthenate - No (PCP - Contractor Applied only)	Probably not, due to likelihood of runoff to environment; see label/manufacture instructions and check State requirements. Do not apply if can enter water.
Inserted Rods (above ground-internal decay)	Impel® Rods	Anhydrous disodium octaborate	No	Yes (Apply above water level)

**TABLE 7-1  
(Concluded)**

<u>Treatment Method</u>	<u>Product Example(s)</u>	<u>Chemical(s) Used</u>	<u>Restricted Use?</u>	<u>Use in Wetlands?</u>
Fumigants (above ground-internal decay)	Various:  Vapam <sup>®</sup> , Wood-Fume <sup>®</sup> , ISK-Fume <sup>®</sup>  Timberfume <sup>®</sup> Pic-Fume <sup>®</sup>  MITC-Fume <sup>®</sup>  Vorlex <sup>®</sup>	Metham sodium/sodium n-methyldithiocarbamate  trichloronitromethane (chloropicrin)  Methylisothiocyanate(MITC)  dichloropropenes	Yes (Contractor-applied only)	No specific restrictions known, but do not allow entry into water; need to:  1) Check label/manufacturer's instructions and State requirements (e.g. metham sodium-toxic to fish) 2) Ensure no release to environment - apply internally, with no spillage, leaks.

## 7.3 APPROVED TREATMENT METHODS

The following is taken primarily from Western's Power System Maintenance Manual, Chapter 11 - Wood Structure Maintenance (September 1992). Additional details concerning wood decay and preservative use can be found in that document.

### 7.3.1 External Decay (Shell Rot) Maintenance

#### Groundline Treatment

Supplemental field treatments are not a substitute for a thorough treatment by the pole supplier or by Western. Western currently through-bores all new poles at groundline, to get 100 percent penetration of preservative and prevent future groundline decay. Nevertheless, treated poles may lose resistance to decay, and groundline treatment provides an economical extension of their physical life. Experience has shown that groundline decay can be postponed almost indefinitely by periodic inspection and maintenance. Groundline treatment is recommended under the following conditions:

- (1) Whenever a pole is excavated during an inspection, and the pole is sound or decay is not so far advanced that the pole must be replaced or repaired.
- (2) Whenever a pole over 5 years old is reset.
- (3) Whenever a used pole is installed as a replacement.

Various products and methods are now promoted for groundline treatment of standing poles. Some solutions are available for pouring on the outer surface of the pole for groundline treatment, but the use of a **preservative paste or grease** or **pole wrap** is recommended. Accepted pastes or greases containing toxic fungi-killing agents, including a high concentration of sodium fluoride, copper naphthenate, or pentachlorophenol are recommended. An example is CuRap #20<sup>®</sup>, which is a paste containing copper naphthenate and borax. Pole wraps contain a layer saturated with fungicide, such as copper naphthenate, and are applied with a staple gun. An example is Cunap Wrap<sup>®</sup>, which uses a copper naphthenate-soaked cloth encased in vapor

resistant bags and a vapor barrier plastic backing. Specimen labels for Cunap Wrap® and other wood preservatives discussed in the following sections are provided in Appendix F.

After excavating a pole and inspecting it below groundline, use a blunt tool to scrape off all external decay found on the pole. Take measurements to determine whether the pole meets the minimum permissible circumference in accordance with the Wood Pole Maintenance Manual. If the circumference of the pole meets the requirements, clean the pole surface with a wire brush. Remove all debris from the excavated area. Cover the surface of the pole from 3 inches below the decayed section up to at least 6 inches above the ground level with an acceptable grease or paste or pole wrap applied according to manufacturer instructions. Wrap the treated section of the pole with two layers of Kraft laminated paper or a suitable substitute. Use staples or masking-tape to hold the wrapping in place.

#### Above-Ground Treatment

Above-ground treatment has been found to be expensive and ineffective on Douglas-fir poles, but can be effective on Western red cedar if done early and the program is monitored and maintained.

The above-ground portion of a pole is not subjected to the same conditions that promote decay at groundline. Nevertheless, decay above ground, often referred to as “shell rot,” may develop in red cedar poles. The treatment should be applied before surface decay starts or while it is in the early stages. It is applied only once during the life of a pole.

There are companies with the required equipment which specialize in performing this type of treatment by contract. The work should be closely supervised, because to be effective, the penetration and absorption of the preservative must be the maximum possible. The recommended preservative is a 5 percent solution of pentachlorophenol or 2 percent solution of copper naphthenate in a light petroleum carrier, or equivalent. The pole surface should be dry, with the pole moisture content below 25 percent.

A Western employee should first spot check the poles from the ground and mark poles that are deemed suitable for the treatment, excluding those defective for any reason. The Contractor should make a climbing inspection of the marked poles, excluding poles in which top decay is too far advanced.

In addition to determining that the right poles are treated, a Western employee should verify the amounts of preservative used, see that critical points are carefully treated, obtain samples of the preservative for analysis, and generally, observe that all details of the treatment are carried out as agreed. Detailed records should be made by the Western COR and retained in permanent files.

The treatment is usually applied through a flexible hose under 5 to 8 pounds of pressure from a tank truck. Treatment starts at the top of the pole with the preservative flowing thoroughly to all surfaces. Immediately after the first treatment, a second application of preservative should be applied at the top 10 feet of the pole to assure maximum absorption on the upper section and at attachment points.

Safety precautions must be carefully observed, especially when applying this treatment to poles supporting energized electric lines. With the exception of copper naphthenate, most preservatives used for these treatments are classified by the EPA as **Restricted Use** chemicals. As such, only licensed applicators may apply these treatments to wood structures. Western personnel may be qualified to apply these chemicals provided they are licensed by the State. The State Department of Agriculture may be contacted for additional information concerning licensing requirements.

### **7.3.2 Internal Decay (Heart-Rot) Maintenance**

#### Chemicals

Volatile chemicals (fumigants) are used for treating Douglas-fir, Western red cedar, ponderosa and southern pine, and larch utility poles to arrest and prevent internal wood decay and to destroy insects such as termites, carpenter ants, and golden buprestid beetles. The chemicals are forced into voids inside the pole to control heart-rot or insect damage.

The active chemicals for fumigants used are metham sodium or sodium n-methyldithiocarbamate (Vapam®), trichloronitromethane (chloropicrin), and methyisothiocyanate (MITC, sold as MITC-Fume®) or dichloropropenes (Vorlex®). All of these chemicals are **Restricted Use** pesticides. Vendors should be contacted to see what new products have appeared on the market. Metham sodium is among the most widely used and is least problematic to handle; however, Chloropicrin may last longer in poles. All three of these chemicals are, however, hazardous to handle and caution should be exercised in their use. Caution should also be taken when Vorlex or MITC-Fume is applied, as it contains approximately 95 percent active ingredient and is inserted into the pole vial a glass vial. This glass vial may cause additional problems in the future if someone cuts the pole. The subsection on Fumigant Retreatment (at the end of Section 7.3.2) provides some additional information on these chemicals.

Impel® rods, containing the active ingredient anhydrous disodium octaborate, are another type of solid wood preservative that can be used to prevent fungal decay or provide remedial protection. The rods are inserted into decaying wood or wood in high risk areas through drilled holes. The number, size, and spacing of the rods is determined by the size of the area to be protected. The rods are positioned so moisture will distribute the preservative throughout the target area as the rods dissolve over time. Impel® rods can also be used to control termites, carpenter ants, beetles, and other wood boring insects. No licensing or certification is required for applicators using this preservative, and Impel® rods can be used in wetland areas or near water, since they present minimal exposure to the environment.

### Insect Damage

Termite, ant, and beetle damage can be a problem in many areas. Ground-dwelling termites can be controlled by the same measures taken to prevent decay - good preservative treatment. Black and brown carpenter ants can be a serious problem, especially in cedar poles. The ants enter the pole through a check or injury and construct galleries that seriously weaken the pole near the groundline. Unlike termites, they do not feed upon the wood. They may be effectively contained (as with decay) by injection of a liquid fumigant or use of Impel® rods. Occasionally, ground-dwelling termites are found in poles that are otherwise sound, and they may be destroyed in the

same manner. Beetles are another threat to poles and can be curbed using the above methods.

### Treatment Process - Fumigants

The liquid fumigant is poured from a 1 pint plastic squeeze bottle into holes drilled in the pole. After the holes are swabbed with preservative and plugged, the fumigant moves as a gas throughout the wood to about 8 feet above and below the hollow area of the pole.

- Amount of Chemical

For poles with heart rot at the groundline, the following amounts of chemical should be used for a retreatment cycle of 9 years or longer.

<u>Pole Circumference</u>	<u>Pints of Fumigant</u>
under 32 inches	3/4
32 to 45 inches	1
over 45 inches	2

- Drilling

Drill a reasonable number of holes to obtain good distribution of the fumigant, but stagger the holes so as not to weaken the pole. Table 7-2 specifies the number of holes of different diameters and lengths needed to place various amounts of fumigants in poles. The hole length allows for the insertion of a treated plug.

**TABLE 7-2**

NUMBER OF HOLES REQUIRED IN  
POLES OF DIFFERENT SIZES TO HOLD  
VARYING AMOUNTS OF FUMIGANT

Hole		Fumigant (pints per inch)	Holes for Poles with Circumferences:		
Diameter (inches)	Length (inches)		< 32 in.	32-45 in.	> 45 in.
5/8	15	0.010	6	-	-
	18	0.010	5	-	-
3/4	15	0.015	4	6	-
	18	0.015	-	5	-
	21	0.015	-	4	-
	24	0.015	-	3	6
7/8	21	0.015	-	3	5
	24	0.015	-	-	4

Starting at the groundline, drill a hole directly towards the center of the pole at a steep downward angle (approx. 45 degrees) that will avoid going through the pole or seasoning checks where most of the fumigant could be lost. If the hole intersects a check, plug that hole and drill another. Equally space the remaining holes (if necessary) around the pole in an upward spiral pattern with a vertical distance of 6 to 12 inches between holes. This is done in such a manner as to allow the fumigant to more easily volatilize and move through the wood. Where a rot pocket is above the groundline, drill holes in solid wood below the pocket as well as above. Avoid plugs from previous borings.

- Application of Fumigant

Wearing protective clothing, goggles, and standing upwind, slowly squeeze the chemical into the lowest hole first. Pour only the prescribed amount into the hole to leave space for the plug. Insert a tight fitting treated plug, preferably of Douglas-fir or other wood of low permeability. Drive the plug in carefully so as not to squirt the chemical from the hole. Working upward, proceed to fill and plug the remaining holes. Replace the original cap to seal the remaining liquid in the bottle.

- Fumigant Retreatment

Different fumigants will last for different amounts of time. Many poles will remain free of internal decay for at least 9 years. When to retreat fumigant treated poles is not easy to determine. However, once decay or damage has been detected, it is imperative that retreatment be done to stop further attack. The following information on retreatment is from Morrell (1994).

Remedial retreatments can be applied either internally or externally. External treatments are usually applied below the groundline. Common external preservatives include copper naphthenate, boron, and sodium fluoride. Copper naphthenate migrates only a short distance into the

wood, while the others can move deeper to presumably control any fungi present.

Internal retreatments include void treatments, fumigants, or water diffusible systems. Void treatments are applied using inspection holes and are probably most useful for controlling insect infestations. Water diffusible fungicides are also applied to inspection holes; these include such products as CuRap 20<sup>®</sup> and Impel<sup>®</sup> rods. Fumigants used for retreatment include Chloropicrin (Timberfume<sup>®</sup>, Pic-Fume<sup>®</sup>), Metham sodium or sodium n-methyldisothiocarbamate (Wood-Fume<sup>®</sup>, ISK-Fume<sup>®</sup> or Vapam<sup>®</sup>), and MITC (MITC-Fume<sup>®</sup>). Chloropicrin is very effective and has shown over 20 years of protection to Douglas fir in field tests. However, it is highly volatile and difficult to handle. Because of this, it is usually used away from inhabited areas. Metham sodium, which remains among the most widely used remedial treatments, decomposes to MITC. This process may be relatively inefficient in wood, but the levels of MITC produced appear to provide 7 to 10 years of protection to Douglas fir poles. Metham sodium is easier to handle than Chloropicrin, but it is caustic and highly toxic to fish. MITC-Fume is the most recently registered wood fumigant and is seeing increased use by utilities. Field tests with MITC-Fume suggest that 2 or 3 vials provide protection comparable to 500 ml (1 pint) of metham sodium. In addition to these three fumigants, others may be registered in the future, as efforts are underway to develop containment systems for Chloropicrin and crystalline solid fumigants.

## **8.1 FUNGICIDES/WOOD PRESERVATIVES**

For the actual pesticide/chemical used to treat wood poles and other wood products, the procedures for storage, handling, cleanup, and disposal presented in Section 8.2 should be followed. As always, label instructions should be read and followed for each chemical used. However, the treated wood poles/products themselves present a unique situation that calls for specific storage, handling, and disposal procedures. **This section (8.1) presents Western's approved procedures for storage, handling, and disposal of wood poles/products.** Much of Sections 8.1.1 and 8.1.2 is taken directly from Western's Power System Maintenance Manual, Chapter 11 - Wood Structure Maintenance (September 1992).

### **8.1.1 Storage of Wood Poles and Wood Products**

Once poles are received from the manufacturer, they are usually stored outdoors at a convenient location to allow for easy access. When it is necessary to hold poles in storage, it is recommended that they be stacked on a treated or non-decaying skid of such a dimension that will support the poles without producing noticeable distortion. The poles should also be stacked in such a manner that the height of the stack is limited to avoid damage to the poles on the bottom layers. The poles should be piled and supported in a way that all poles are at least 1 foot above the general ground level. Vegetation should be periodically cleared from the vicinity of the pole storage area to keep the poles free from fungus and decay caused by rotting foliage trapped on and between the poles. Decayed or decaying wood should be removed from the storage pile to prevent decay from spreading to other stored poles. Poles should be rotated periodically to prevent the preservative inside the pole from leaching to one side. This may be accomplished at two year intervals when other maintenance tasks do not require immediate completion.

Crossarms and X-braces may be stored in such a manner that allows for convenient access once they are needed. It is recommended that cross arms and X-braces be stored in an area as a shed or building that protects the products from climatic conditions such as rain or snow that may cause the crossarm or X-brace to become distorted prior to being used. Crossarms and X-braces should be stored off the ground, preferably on some type of non-decaying pallet with lathes placed between stack layers to allow for air circulation between the wood members.

Treated wood products should be stored on an impermeable surface that prevents chemicals, which may drip off or leach out of the wood, coming into contact with and contaminating the soil. Some State regulations may require that contaminated soil be tested to determine if regulatory toxicity levels are exceeded. If regulatory toxicity levels are exceeded, the soil must be excavated and disposed of as a hazardous waste. Refer to the POWER SYSTEM SAFETY MANUAL Section 6.4 for storage of hazardous materials.

### **8.1.2 Handling of Wood Poles, Crossarms, and X-braces**

Upon receiving poles, crossarms, or X-braces, care should be taken in the handling and stacking of the wood members. Wood should not be dropped to the ground as this may cause ring shake in poles and cracks or checks in the crossarms and X-braces. All wood products should be inspected for indentations, abrasions, checks, or other damage attributed to the manufacture or the loading of the wood members prior to acceptance by Western personnel.

Avoid frequent or prolonged skin contact with treated wood. Personnel who may come in contact with the preservatives or treated wood must wear proper clothing, such as long sleeved shirts, long pants, and gloves impervious to the chemical, as well as be aware of emergency and first aid procedures specified in the Material Safety Data Sheet (MSDS). After working with the wood and before eating, drinking or using tobacco products, wash exposed areas thoroughly.

Avoid inhalation of sawdust from treated wood by using a dust mask. Sawdust producing operations should be performed outdoors to avoid indoor accumulation of airborne treated sawdust.

After injecting a pole with fumigants, wear safety goggles when plugging the boreholes to protect the eyes from unintentional squirting of the chemical from around the plug while it is being driven in.

### **8.1.3 Disposal of Used Treated Wood Products**

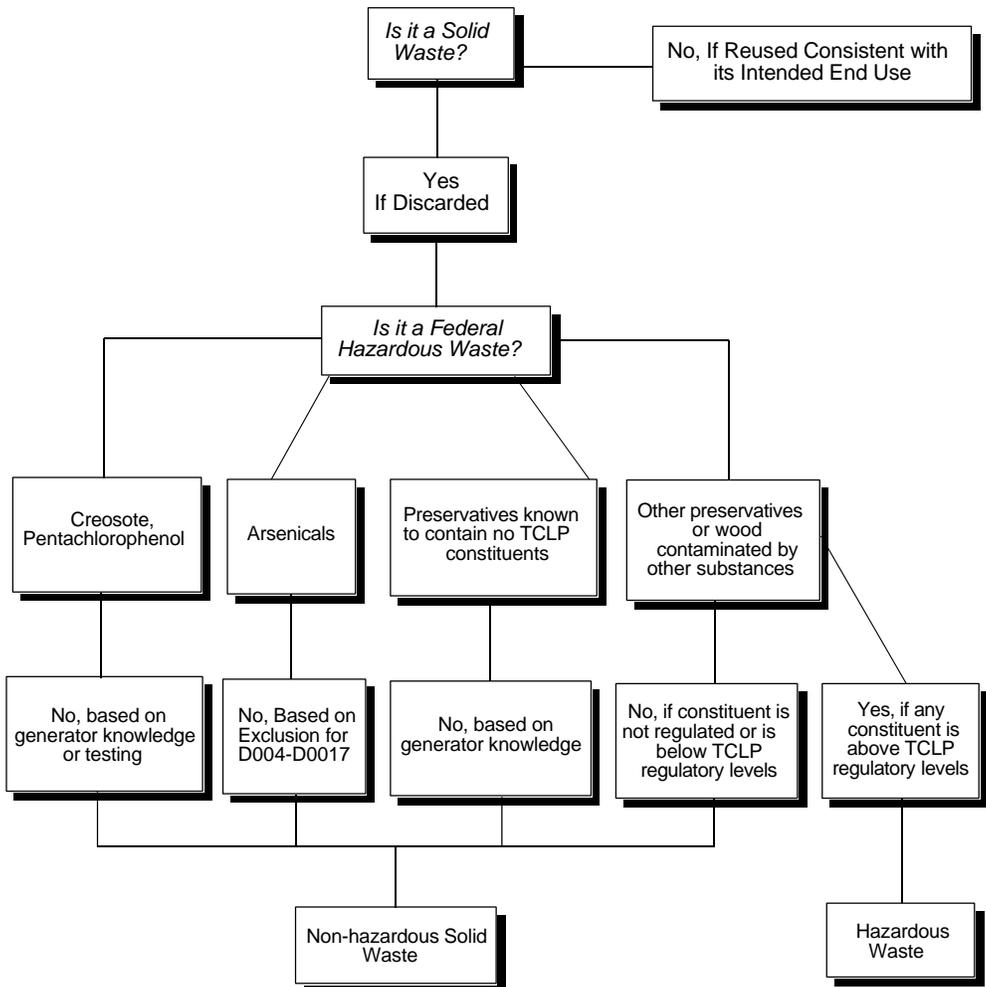
The current disposal options for used treated wood products include:

- Transfer to other parties
- Bioremediation
- Remanufacturing
- Landfilling
- Processing as fuel for steam or power generation (energy recovery)

**Transfer to other parties** is discussed in more detail in Section 8.1.4. **Bioremediation** is somewhat unproven and not yet an economically viable option. **Remanufacturing** waste wood products is an option being developed as an alternative to traditional disposal means. In the near term, however, the remanufacturing option is limited due to a lack of technology and economic viability.

**Landfilling** and **use as fuel (energy recovery)** are options that are often elected as disposal options. A first step in managing any material destined for disposal as a solid waste is to determine if it is a hazardous waste under Federal and State regulations. Figure 8-1 provides a flowchart that can be used to determine this. As the flowchart indicates, in most cases treated wood that is disposed is not a hazardous waste under Federal law, because it has not been listed and testing has demonstrated that it does not exhibit a hazardous characteristic. Also, wood products treated with arsenicals are exempt from Federal hazardous waste regulation. However, some disposal facilities and/or State regulations may require testing before accepting treated wood as a nonhazardous waste. In such cases, a TCLP test may be required.

## MANAGEMENT OF USED TREATED WOOD PRODUCTS



SOURCE: TREATED WOOD LIFE CYCLE MANAGEMENT COALITION 1994.

MANAGEMENT OF USED TREATED WOOD PRODUCTS

VMP05

FIG. 8-1

Appendix G provides EPA Consumer Information Sheets for penta, creosote, and arsenical-treated wood. These sheets contain additional information about safe handling and disposal practices. Appendix H is a summary of California rules that apply to disposal of treated wood waste in that State, as compiled by the Western Wood Preservers Institute (1994).

**If additional information or help is needed in determining if a treated wood product is a hazardous waste or in selecting disposal options, call the EPA Hotline (1-800-424-9346).**

Treated wood should not be burned in open fires, stoves, fireplaces, or boilers, as toxic fumes may be produced and the ash may contain hazardous material. Treated wood should not be reused where the preservatives can leach into public or animal drinking water or food.

Rags and debris that contain the preservative should be considered a hazardous waste until tested. If found hazardous, they should be disposed of in accordance with Federal and State Regulations.

#### **8.1.4 Transfer to Other Parties**

It is common for an electric utility to auction off, sell or give away its discarded wood poles to consumers who will use the poles for other uses. It is also common for publicly-owned utilities to give their poles to other city departments, such as parks and recreation departments, for other uses. Consumers who receive these pressure-treated poles frequently use them as they would use ordinary lumber. For example, they may use the pressure-treated poles to build barns, fences or patios, or to edge vegetable gardens. Parks and recreation departments may use them in playgrounds or to edge plantings. **While many uses of these treated poles are harmless, there are other uses to which an unknowing consumer might put the poles, which could result in a harmful exposure to the toxic chemical which were used to treat the poles.** For example, toxic chemicals may leach from treated wood poles, and therefore all uses of treated wood that may result in extended contact with human skin (bare feet on a patio, for example), or which could cause contamination of soil and groundwater should be avoided.

There is also a danger that consumers who receive these poles may burn them, either in open fires or in fireplaces. **Treated wood poles should never be burned in open fires or in stoves, fireplaces or residential boilers because toxic chemicals are produced as a part of the smoke and ashes.**

Used treated wood products may be transferred to other parties at the present time under Federal regulations. The Environment Protection Agency (EPA) has agreed to allow the continued use of creosote, pentachlorophenols, and arsenicals, provided the Consumer Information Sheets or Material Safety Data Sheets accompany the product. State regulations may be more restrictive than Federal regulations on transfers and should be consulted before any transfers are made.

If allowed, the mechanism for transfer of used treated wood products would include the following steps:

1. Obtain clear transfer of title.
2. Provide full disclosure to the recipient that the product is treated with toxic chemicals through distribution of Western's Consumer Information Sheet (Appendix I) and obtain acknowledgment with a request to transfer document.

## **8.2 OTHER PESTICIDES**

Generally, Western employees will be dealing with relatively small amounts of pesticide, since all of the chemicals used will be "over the counter," General Use formulations. If any Restricted Use Pesticide is used, the application Contractor is responsible for its proper storage, handling, cleanup, and disposal. Within any scope of work for Contractor application of pesticides, it should be noted that the Contractor will apply the pesticides in accordance with all Federal, State, and local requirements, as well as Western's policies and standards.

### 8.2.1 Handling of Pesticides

It is extremely important to follow label requirements pertaining to the use of safety equipment and clothing. Each job should be assessed for hazard - there may be occasions when common sense requires additional precautions to be taken even though not required by law.

Pesticide poisoning of applicators or those associated with the application usually occurs from absorption through the skin. To avoid pesticides coming into contact with the skin, it is recommended that the minimum requirements shown on Figure 8-2 be followed for handling of "over the counter" type pesticides.

- **Coveralls** - Coveralls (or long-legged trousers and long-sleeved shirt) that cover the entire body from wrists to ankles will be worn at all times during handling or application operation. **Note: Pant legs and sleeves should be worn outside of boots or gloves.** Disposable or reusable coveralls are also acceptable. If the operation will result in contact with heavy spray or mist, a waterproof suit should be worn. If liquid-proof clothing is required, it should be made of a tear-resistant plastic.
- **Gloves** - Chemical resistant gloves must be worn anytime pesticides are handled either during the mixing or loading operation or during hand application where prolonged exposure to spray occurs. Unlined flexible plastic or neoprene gloves are the most desirable. Check the gloves for leaks prior to use, by filling with water and squeezing the glove. Do not use gloves that have cloth lining or wristbands, or are made of leather, paper, or fabric.
- **Boots/Shoes and Socks** - When boots are required, unlined rubber boots which cover the ankles should be worn. Coverall legs should be worn outside the boots. Boots should be washed often. Do not use leather or fabric boots or shoes.

You need to decide! Read the label. The formulation, signal word, precautionary statements, personal protective equipment statements, the application method, and the projected length of exposure indicate the personal protective equipment you need.

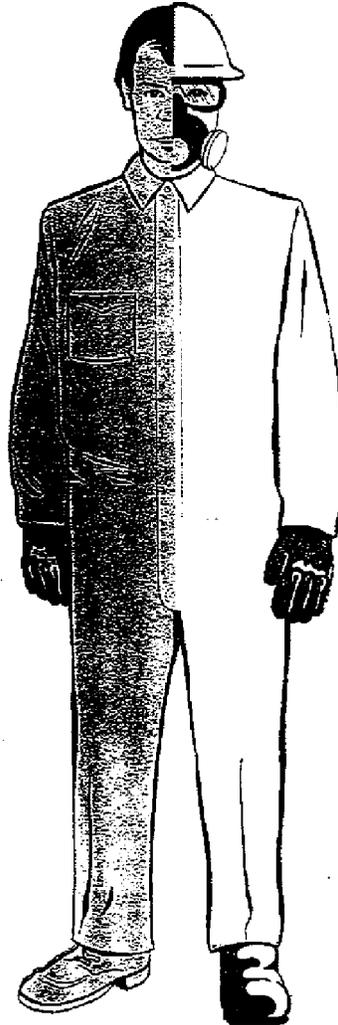
**Minimum Exposure**

(Such as granular applications and many other routine pesticide activities)

**Protective suit (such as fabric coveralls) worn over normal work clothes**

**Chemical-resistant gloves such as rubber, vinyl, or plastic**  
(Never use fabric, leather, or paper gloves)

**Socks and shoes or boots**



**Maximum Exposure**

(Such as direct contact with drenching spray, mist blower or knapsack applications, or handling very highly toxic pesticides)

**Chemical-resistant hood or hat**

**Goggles or face shield**

**Respirator** (If the label requires it or if dusts, mists, fogs, or vapors will be generated.)

**Chemical-resistant protective suit worn over normal work clothes**  
(A chemical-resistant protective suit may cause stress under some conditions)

**Chemical-resistant gloves such as rubber, vinyl, or plastic**  
(Never use fabric, leather, or paper gloves)

**Chemical-resistant boots or footwear**  
(Never wear leather or on-canvas footwear)

SOURCE: EPA 1987

PROTECTIVE CLOTHING  
AND EQUIPMENT  
DILUTE PESTICIDES

VMP04

FIG. 8-2

- **Goggles/Face Shield** - Goggles must be worn when pouring or mixing concentrates. Goggles should be the type that are non-fogging. Face shields should be made of clear plastic and be attached to the hat so they can be raised or lowered. Do not use eye protection with a headband that can absorb the pesticide.
- **Hats** - A liquid-proof washable plastic hard hat should be worn by applicators during pesticide application and mixing operations as shown on Figure 8-2. Hats and leather sweatbands should not be worn.

For General Use, “over the counter” pesticides, respiratory devices and aprons are not expected to be necessary.

The following additional rules should be followed when handling pesticides:

- To minimize inhalation, handle all pesticides in well ventilated areas only.
- Immediately wash any contamination off the skin, with detergent and water. Frequent washing of the skin during and after pesticide application is as important as protective clothing.
- Do not allow leaks in the chemical mixing equipment. Keep equipment in good mechanical condition. Properly calibrate equipment prior to application.
- Wear appropriate clothing as required for the type of chemical being used. Wash work clothing daily and change to clean clothing when not on duty.
- Read the label on the chemical container and follow recommended safety practices. Do not use any chemical in a manner inconsistent with its label.
- Wash hands with soap and water immediately after contact with chemicals, and before smoking or handling food. Do not eat, drink, or

smoke while using chemicals. Chemicals are absorbed through the skin more readily in the areas of the neck, wrists, and genitals.

- Safely dispose of empty chemical containers immediately after use.
- Do not work in direct spray drift.
- Never smoke, eat or drink while spraying or dusting.
- Avoid standing over openings or downwind of materials when filling applicators or mixing chemicals. When mixing concentrated liquids, use face shield.
- Never leave contaminated equipment or chemicals unattended.

### **8.2.2 Pesticide Storage Requirements**

Federal Regulations (40 CFR Part 165) recommend specific procedures and criteria for the storage, monitoring and inventory of pesticides, pesticide containers and the equipment used for the application of pesticides. In addition, most sites have regulations for the storage of pesticides, particularly for bulk storage. The regulations for each State should be reviewed for details of that State's requirements.

In general, the following storage guidelines should be followed to prevent an uncontrolled release of pesticides into the environment and to prevent any unnecessary exposure of workers and the public.

#### Storage Site Location

If quantities of pesticides must be stored, storage sites should be selected with due regard to the amount, toxicity, and environmental hazard of pesticides, and the number and sizes of containers to be handled.

- Storage site areas should be located in a separate room, building or covered area where fire protection is provided.

- Storage sites should be located where flooding is unlikely, and at least 100 feet from any drainage ditch, well, or water body.
- Storage sites should not be located adjacent to or upslope from sensitive landscaping, gardening areas, croplands, feeders, or rangeland.
- Storage sites should not be located near fuel storage areas or others flammable materials.
- Storage sites should be located where there is easy access for emergency vehicles. Inform local police, fire department, and medical officials of the location and layout of the storage area and the types of materials stored.

### Storage Facilities

- Pesticides should be stored in a dry, well-ventilated building.
- Storage facilities should be kept neat and clean, and free from chemical spills in and around the storage area.
- The entire storage facility should be secured with a fence, gate and/or doors that can be locked to prevent unauthorized entry.
- An all-purpose fire extinguisher must be kept in a readily accessible location and maintained for proper performance. All employees should be familiar with its operation.
- Pesticide storage areas should be identified at all points of entry with waterproof signs reading “PESTICIDE STORAGE AREA” and “NO SMOKING,” and if applicable “DANGER, POISON,” and “FLAMMABLE.”
- An area should be provided for any necessary decontamination of personnel and equipment. Where required, the decontamination area

should be paved or lined with impervious materials. All contaminated water should be disposed of as an excess pesticide.

- Storage areas should maintain a current inventory of the number and type of pesticides in the storage building. This inventory will be updated on an annual basis by maintenance personnel and/or the environmental specialist to minimize the accumulation of unwanted and unused materials.

### Operational Procedures

- All equipment used for handling pesticides, which might be used for other purposes, should be labeled “contaminated with pesticides” and should not be removed from the site unless thoroughly decontaminated.
- Store pesticide containers in an upright position, off the ground, and with the label plainly visible. Dispose of unlabeled pesticides. Treat them as highly toxic.
- Containers should be checked regularly for corrosion and leaks. Replace damaged containers with like containers and attach a copy of the original label. Never use any type of food containers for storage of toxic chemicals.
- Materials such as adsorptive clay, hydrated lime, and sodium hypochlorite should be kept on hand for emergency treatment of spills and leaks.
- Clean water supply for emergency wash up and rinsing should be available outside the storage building.
- Keep chemicals separated by type to prevent cross-contamination.

- Pesticide containers should be further segregated according to the method of disposal (see Section 8.2.4) to prevent accidental mixing during removal operations.
- Keep pesticide containers, particularly glass, away from windows and sunlight so they will not be subject to heat and ignition.
- Keep combustibles away from steam lines and heat (see label for information on flammability).
- Store empty containers in the secured storage area until proper disposal can be arranged (see Section 8.2.4).
- Never store pesticides next to food or feed intended for human or animal consumption.

#### Application Equipment

- Empty unused pesticide from equipment after each application. Return unused pesticide into its original container.
- Clean and properly maintain application equipment after each use.
- Never store personal protective equipment near pesticide material, especially protective eye wear, gloves, or respirator apparatus.
- When rinsing off application equipment, it is advised to do so over a concreted pad with a contained drainage system to prevent chemical leaching problems.

## Fire

If a fire should occur in a pesticide storage facility, the following actions should be taken:

- Call the Fire Department and supervisor.
- Have fire inspector or facilities engineer notify a qualified physician to remain on stand-by.
- Inform fire-fighting personnel of the following:
  - (1) Type of chemicals contained in the facility.
  - (2) Safety equipment that is required and possible poisoning if exposed to fumes or smoke without adequate protection.
- Maintain a safe distance in the event of explosion.
- Avoid large volumes of water, to minimize toxic run-off. If necessary, a dike should be constructed to prevent run-off contamination and to contain overflow of burning liquid.
- Rope off contaminated area and maintain it under continuous supervision until cleanup is completed.
- Avoid smoking, drinking or eating while fire fighting, to avoid ingestion of toxic substances.
- Protect employees and nearby residents by recommending evacuation of residents downwind of any fire, and requiring a medical check for those that may have been exposed.

### 8.2.3 Spill Clean-up Procedures

All reasonable precautions should be taken to avoid spilling pesticides; however, should an accident occur, immediate action is required. A quick and effective response is necessary to minimize effects on employees, the public, and the environment. The following guidelines can minimize these impacts.

#### Minor Spills

Minor spills will be the most common type of spill. When such spills occur, if at all possible, mix the spilled pesticide into soil or other absorbent material and spread it over areas where specific control is required at a rate equivalent to the label rate. If the spill occurs away from the application area (e.g., at a storage area), then proceed with the containment, notification, clean-up, decontamination and disposal procedures listed under Section 8.2.3.2.

#### Major Spills

Most spills of the General Use pesticides used by Western employees will be minor in nature. However, a spill will be considered major if it has the potential to affect human health and/or:

- A spill of any quantity of mixed or undiluted pesticide directly into a water course or in the proximity of a water course where the pesticide might easily reach the water.
- A spill of five gallons or more of undiluted pesticide or five pounds of pellets, granules, or powders which cannot be recovered on or off the right-of-way, substation, or other facility.
- A spill where none of the pesticide can be recovered.

- A large spill in a sensitive area where:
  - Water is being used for domestic purposes, fish hatcheries, irrigation, etc.
  - The area is adjacent to a stream or the water table is high.
- A spill which must be reported to the National Response Center and appropriate State Authority (see Appendix J). This would include spills of pesticides considered “Hazardous Substances,” such as most wood preservatives.

The steps below are general procedures which should be adapted to different spill situations. Specific actions to be taken for each of these 6 steps are discussed below. If the spill is a major spill, Steps 4-6 may be conducted by an outside waste removal Contractor. This will be decided when notification is given in Step 3.

1. Take care of injured.
2. Contain spill.
3. Notify appropriate individuals/Agencies.
4. Clean up spill.
5. Decontaminate area and equipment.
6. Dispose of spilled material.

## 1. **Take Care of Injured**

- **Medical Emergencies**
  - First Aid - Pesticide manufacturers and medical personnel are the two best sources of information on how to help victims exposed to pesticides. Pesticide labels and MSDS's may note specific information on what to do for first aid and medical emergencies.

The following tips may be useful should emergency pesticide exposure occur:

- REMAIN CALM
- AVOID CONTAMINATING YOURSELF WHEN HELPING THE VICTIM.
- INFORM MEDICAL PERSONNEL OF THE NAME OF THE PESTICIDES INVOLVED.
- IF POSSIBLE, SEND COPIES OF THE LABEL AND MSDS WITH THE VICTIM TO THE HOSPITAL.

Some basic first aid steps include:

- If skin is contaminated, wash the victim with clean water while wearing gloves and other needed personal protective equipment (PPE).
- Remove contaminated clothes and loosen other clothing.
- Eyes should be washed with clean water for a minimum of 15 minutes while holding the victim's eyelids open.
- If the pesticide is ingested, check with the label and physician to see if vomiting should be induced. Vomiting should only be induced if the person is fully conscious, the pesticide is not corrosive and was taken by mouth.
- If the pesticide is airborne, protect yourself with an approved respirator before entering the contaminated area.
- Get the victim to fresh air as soon as possible.

- Resources - The specific manufacturer is the best resource when it comes to medical emergency information. Often the manufacturer will list a 24-hour emergency number on either the label or MSDS.

## 2. Contain Spill

Spilled pesticide must be contained to facilitate clean-up and prevent the pesticide from further contaminating the environment. Follow these procedures:

- Wear protective clothing according to label instructions. Rubber or neoprene gloves, rain suits and rubber boots may be used when appropriate.
- Prevent further leakage by repositioning container and sealing with rags, tape or other material at hand.
- Cover the spill with an absorbent material if the spill is liquid; absorbent materials include clay-type cat litters, sawdust, etc. If the spill is a dry chemical, cover it with a plastic tarpaulin and secure.
- Prevent ignition of flammable materials by eliminating sources of ignition; for example, exhausts, electric motors, gasoline engines, etc.
- **DO NOT** flush the spill into a ditch, sewer, drain or off the road, since this further spreads the spill.

### 3. **Notification and Follow up**

Spills and incidents involving regulated materials involve notification of, the following:

- Immediate supervisor(s)
- Western Regional Environmental and Safety Managers
- Western CSO Office of Environment, and CSO Safety Office
- State Agencies (See Appendix J)
- Land Owner, Management Agency
- National Response Center (800-424-8802) as applicable

Additional notifications may be required as per existing Spill Prevention, Control, and Countermeasures (SPCC) procedures.

The following Department of Energy requirements also apply as to emergency responses, reporting, and follow up:

DOE Order 151.1, Comprehensive Emergency Management System

DOE Order 231.1 Change 2, Environment, Safety, and Health Reporting

DOE Manual 231.1-1, Environment, Safety, and Health Reporting

DOE Order 232.1A, Occurrence Reporting and Processing of Operations Information

DOE Manual 232.1-1A, Occurrence Reporting and Processing of Operations Information

### 4. **Clean Up Spill**

Spill clean-up is necessary to remove potential hazard. Since pesticides can liberate toxic fumes or vapors, always work in a well ventilated area. Open enclosed areas to prevent the accumulation of toxic fumes while working. **NEVER WORK ALONE!** Always maintain eye contact with a work partner. If additional information about emergency spill clean-up is necessary, contact CHEMTREC (Chemical Transportation Emergency Center - phone 800-424-9300).

- **Dry Spills**

Immediately cover powders or dusts with plastic or a tarpaulin to prevent the pesticide materials from becoming airborne.

- Clean up by rolling the tarp back little by little as you sweep.
- Shovel the material into a plastic bag or drum.
- Seal the bags or drums and identify the pesticide.
- If necessary, set the bags or drums aside for subsequent disposal.

- **Liquid Spills**

- Use absorbent materials such as commercially bagged clay or cat litter to soak up the spill.
- Spread the absorbent material around the perimeter of the spill and sweep toward the center.
- Shovel the absorbent and pesticide into leak-proof container(s) for subsequent disposal.
- Label the containers.

## 5. **Decontamination**

The small amount of pesticide remaining after the clean-up process (on the road surface, storage area floor, or non-porous truck bed) must be decontaminated or neutralized. Nutra-Sol Equipment Cleaner (standard size container - 2 lb.) may not totally inactivate or detoxify the pesticide, but will react with it to form a less toxic or less mobile compound; this may be used in place of a decontamination solution.

- **Soil**

Contaminated soil should be removed to a depth of at least two inches below the contaminated zone and placed in containers for disposal.

Activated charcoal may be spread to further absorb and dilute remaining pesticide residues.

- **Roadways, Floors and other Non-porous Surfaces**

- Spread the appropriate decontamination agent on the spill and work it into the surface using a coarse broom or scrub brush. Allow the decontaminant to soak for two hours.
- Pick up the decontamination material by spreading fresh absorbent material around the perimeter of the spill area, sweeping it toward the center, and shoveling it into plastic bags or drums.
- Repeat the decontamination and clean-up process.

- **Tools and Vehicles**

- Before removing any vehicles involved with the spill, a decontamination solution should be used to clean all contaminated parts that might be exposed to the public or other employees. Nutra-Sol Equipment Cleaner may be used in place of decontamination solution (standard size container - 2 lb.).
- Apply the appropriate decontamination solution to all tools and equipment. Allow to soak for two hours. Rinse with a sparing amount of water. Then wash the tools and equipment with detergent and water. The rinse solution should be collected for subsequent disposal.

- **Wood and Other Porous Materials**

Discard or destroy porous material and equipment such as brooms or leather shoes. These cannot effectively be decontaminated.

- **Protective Equipment**

All equipment should be scrubbed in a strong detergent solution, rinsed and dried before putting away for reuse. Discard any material that is grossly contaminated or that can't be decontaminated.

- **Personnel**

All personnel should decontaminate themselves with detergent and lots of water. Inner clothing should be washed with strong detergent separately from other household laundry.

## 6. **Disposal**

Disposal of pesticide and pesticide spill residues should be done in accordance with the procedures found in Section 8.2.4 (below).

### **8.2.4 Disposal**

Disposal of containers and excess material or debris from spills is regulated by the EPA and by various State and County agencies within Western's service area. In addition, some types of excess pesticides, some types of contaminated pesticides, and spill clean-up materials must be disposed of as hazardous waste.

#### Action

Check Appendix A for State-specific disposal requirements. Unless otherwise specified in State or local regulations, dispose of excess pesticides, pesticide containers, or spill clean-up materials in the following manner:

- **Liquid Pesticide Containers:** Triple rinse all containers for liquid pesticides and add rinse solution to spray tank mix. Each rinse solution should be equal to at least 1/4 of the container volume if the container is 5 gallons or less, and 1/5 the container volume if the container is over 5 gallons. Empty, triple-rinsed containers should be punctured or

crushed and disposed of in a sanitary landfill or approved disposal site. Because the status of various landfills may change, check with the landfill operator prior to disposal. Contact the appropriate environmental specialist if there are questions or problems with local disposal sites.

- **Dry Pesticide Containers:** Paper and carton-type containers should be thoroughly emptied. Tear/cut open bags or boxes and shake out into spray tank. For fiber drums and large containers strike three times over working solution; triple-rinse containers with plastic or foil liners if pesticide is formulated to be mixed in a liquid solution. Dispose of at a sanitary landfill or disposal site as above.
- **Contaminated Materials from Spills:** Debris resulting from spills must be disposed of as if it were the pesticide itself. Disposal should be at a designated disposal site.

#### Hazardous Waste Disposal/Hazardous Substances

Some discarded pesticides may be subject to regulation as hazardous waste. Because of the quantities involved in the use of "over-the-counter" pesticides, it is not expected that Western employee use of pesticides will result in the generation of any hazardous waste. However, wood preservatives may require handling and disposal as hazardous waste.

The following references were used in preparing this document, and the authors give credit to all of them for their materials.

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**APPENDIX A**  
**STATE PESTICIDE REGULATIONS**  
**(Current as of September 1999)**

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## **Arizona**

### **Prohibited Pesticides (State)**

Rely on EPA's Restricted Use listing and the Department of Environmental Quality for agriculture uses (e.g., herbicide fosamine ammonium is not registered in Arizona; check labels for restrictions)

### **Special Requirements For Storage, Use and Disposal**

#### **R3-3-301 Pesticide Use.**

- (a) No person shall use, apply or instruct another to apply a pesticide in a manner or for a use inconsistent with the product label or labeling.
- (b) No persons, other than those making applications pursuant to government sponsored control measures, shall apply, cause or authorize another to apply or cause the direct release of a pesticide spray, dust, or granules such that it comes into contact with persons (other than those involved in the application who are wearing the proper protective clothing and equipment), animals, or property other than the target crop being treated.

#### **R3-3-305 and R3-3-315 Storage and Disposal.**

No person shall dump, negligently store or leave unattended any pesticide, or pesticide container or part thereof, at any place or under any condition where it presents a hazard to persons, animals or property.

Pesticide containers can be disposed of at an approved sanitary landfill, owned in accordance with state and local regulations or at a DEQ approved hazardous waste disposal site. The containers must be triple rinsed and rendered incapable of holding liquid prior to disposal. Pesticide containers may be recycled in accordance to label instructions.

**Pesticide Use Restrictions To Protect Surface and Groundwater**

Yes, only in regard to agricultural uses.

**Does the state have a groundwater protection program in regard to pesticides?**

Yes - for agricultural uses.

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Pesticide Regulations Office: Arizona Department of Arizona Environmental Services Division

Contact Person: Ken Davis Phone: (602) 542-0986

Address: 1601 N. 7th St., Phoenix, AZ 85006

Pesticide Application Certification: Structural Pest Control Commission

Contact Person: Maria Munoz Phone: (602) 255-3664  
X2271

Address: 9545 E. Doubletree Ranch Road  
Scottsdale, AZ 85258

## California

### Prohibited Pesticides (State)

#### 6400 Restricted Materials.

- (a) Any pesticide labeled as a "Restricted Use Pesticide" under Federal law.
- (b) Pesticides containing active ingredients which have the potential to pollute groundwater, listed in section 6800(a), when labeled for agricultural, outdoor institutional, or outdoor industrial use. (See section 6800, below).
- (c) Certain other Pesticides
  - **ACROLEIN**, when labeled for use as an aquatic herbicide
  - **ALDICARB** (Temik)
  - **ALUMINUM PHOSPHIDE** (Phostoxin)
  - **4-AMINO PYRIDINE** (Avitrol)
  - **AZINPHOS-METHYL** (Guthion)
  - **CALCIUM CYANIDE**
  - **CARBARYL** (Sevin), except
    - (1) When formulated as a bait; or
    - (2) When labeled only for one or more of the following uses: use directly on livestock or poultry, home use, structural pest control, industrial use, institutional use, or use by public agency vector control districts pursuant to Section 2426 of the Health and Safety Code.
  - **CARBOFURAN** (Furadan)
  - **CHLOROPICRIN** - soil fumigant
  - **3-CHLORO-P-TOLUIDINE HYDROCHLORIDE** (Starlicide)
  - **DICAMBA** (Banvel) except certain formulations (see Vegetation Management Manual)

- **2,4-D** except certain formulations (see Vegetation Management Manual)
- **2,4-DB** except certain formulations (see Vegetation Management Manual)
- **2,4-DP** except certain formulations (see Vegetation Management Manual)
- **1.3-DICHLOROPROPENE** (Telone II)
- **DISULFOTON** (Di-Syston), except when labeled only for one or more of the following uses: home use, structural pest control, industrial use, institutional use, and use by public agency vector control districts pursuant to Section 2426 of the Health and Safety Code.
- **ENDOSULFAN** (Thiodan) except when labeled only for one or more of the following uses: home use, structural pest control, industrial use, institutional use, and use by public agency vector control districts pursuant to Section 2426 of the Health and Safety Code.
- **ETHOPROP** (Mocap), when labeled for turf use.
- **FENAMIPHOS** (Nemacur)
- **LINDANE** except when labeled only for one or more of the following uses: home use, structural pest control, industrial use, institutional use, and use by public agency vector control districts pursuant to Section 2426 of the Health and Safety Code.
- **METAM SODIUM** labeled for the production of agricultural plant commodities.
- **METHAMIDOPHOS** (Monitor)
- **METHIDATHION** (Supracide)
- **METHOMYL** (Lannate), except fly baits containing not more than one percent methomyl.
- **METHYL BROMIDE**
- **MCPA** except certain formulations (see Vegetation Management Manual).
- **METHYL ISOTHIOCYANATE** (MITC), labeled for the production of agricultural plant commodities.
- **MEVINPHOS** (Phosdrin)

- **MOLINATE** (Ordram)
- **OXYDEMETON-METHYL** (Metasystox-R)
- **PARAQUAT** ( Gramoxone)
- **PARATHION-METHYL**
- **PHORATE** (Thimet)
- **PROPANIL**
- **SODIUM CYANIDE**
- **SODIUM FLUOROACETATE** (compound 1080)
- **STRYCYNINE** except rodenticides when labeled only for one or more of the following uses: home use, structural use, Industrial use, institutional use, and use by public agency vector control districts pursuant to Section 2426 of the Health and Safety Code.
- **SULFOTEPP**
- **THIOBENCARB** (Bolero)
- **THIBUFOS** (DEF, Folex)
- **TRIBUTYL TIN** organotin, or a tri-organotin compound formulated as an antifouling paint, coating or compound and labeled for the control of fouling organisms in an aquatic environment.
- **ZINC PHOSPHIDE** except when labeled only for one or more of the following uses: home use, structural use, industrial use, institutional use, and use by public agency vector control districts pursuant to Section 2426 of the Health and Safety Code.

NOTE: *Authority Cited:* Sections 14004.5 and 14005. Food and Agricultural Code. Reference: Sections 14004.5 and 14005, Food and Agricultural Code.

## **Special Requirements for Storage, Use, and Disposal**

### **6670 Findings of the Director.**

- (a) The director finds that pesticides and used pesticide containers may cause injury to persons, animals, or the environment unless they are stored, transported, handled, or disposed of in a safe manner. These regulations shall be construed to provide positive controls over these chemicals and containers.
  
- (b) Pesticides, emptied containers, or parts thereof, or equipment that holds or has held a pesticide, shall not be stored, handled, emptied, disposed of, or left unattended in such a manner or at any place where they may present a hazard to persons, animals (including bees), food, feed, crops, or property. The commissioner may take possession of such unattended pesticides or emptied containers to abate such hazard.

## **Herbicide Use Restrictions to Protect Surface and Groundwater**

### **6800 Groundwater Protection List.**

Pesticides labeled for agricultural, outdoor institutional, or outdoor industrial use that contain any of the following chemicals are designated as having the potential to pollute groundwater.

- (1) Atrazine
- (2) Bentazon
- (3) Bromacil
- (4) Diuron
- (5) Prometon
- (6) Simazine

6802 Pesticide Management Zones.

A Pesticide Management Zone is a geographical area of approximately one square mile which is sensitive to groundwater pollution. The Management Zones are listed by County, legal description, and type of pesticides; however, individual counties must be contacted for the most current list.

**Does the State have a groundwater protection program in regard to herbicides?**

Yes - for agricultural uses.

**Miscellaneous Information**

6674 Posting of Pesticide Storage Areas.

Signs visible from any direction of probable approach shall be posted around all storage areas where containers which hold or have held pesticides required to be labeled with the signal words "warning" or "danger" are stored. Each sign shall be of such size that it is readable at a distance of 25 feet and be substantially as follows:

DANGER, POISON STORAGE AREA, ALL UNAUTHORIZED PERSONS KEEP OUT, KEEP DOOR LOCKED WHEN NOT IN USE.

This notice shall be repeated in an appropriate language other than English when it may reasonably be anticipated that persons who do not understand the English language will come to the enclosure.

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Pesticide Regulations Office: Dept. of Pesticide Regulations Enforcement  
Branch

Contact Person: Jim Shattuck Phone: 916-445-3860

Address: 1220 N. St. Room A170, Sacramento, CA  
95814

Website: <http://www.cdpr.ca.gov>

## **Colorado**

### **Prohibited Pesticides (State)**

None, other than what EPA bans.

### **Special Requirements For Storage, Use, and Disposal**

**Part 11 Storage.** (See also Colorado Water Quality Control Act information, under Groundwater Protection Program question, below.)

- 11.01 All licensees shall store pesticide concentrates and dilute mixtures using methods which are reasonably calculated to prevent the contamination of other products by means of volatilization, leakage, breakage, or other causes, and which are reasonably calculated to avoid the creation of an unreasonable risk of harm to persons, property, domestic or wild animals, or the environment.
- 11.03 Indoor storage areas shall be secured from access by unauthorized persons.
- 11.04 Outdoor storage areas shall be fenced or walled and locked.
- 11.05 Pesticide storage areas shall be marked with a sign, in letters at least one inch high, which reads: "WARNING: HAZARDOUS MATERIALS (PESTICIDES) ARE CONTAINED WITHIN. In case of emergency, contact: (name) at (telephone)." Compliance with this rule is not necessary for any person who has marked his storage areas with signs which comply with the local fire department requirements.
- 11.06 Each licensee storing pesticides shall inform the local fire department of the location of the pesticide storage, and shall provide the fire department with material safety data sheets for all pesticides held at the location.

11.07 Each licensee who stores pesticides shall have available, at each storage location, in good working order, one or more fire extinguishers rated for chemical fires, and materials for use in cleaning up pesticide spills.

### Part 13 Notification.

Any pesticide applicator making an aquatic pesticide application in any body of water with any legal public access shall post a sign notifying the public of the application at each place of legal access.

### Part 6 Records.

6.01 Licensed commercial applicators shall maintain accurate and legible office records of each application of pesticides made for hire.

6.03 Such records shall include all of the following information.

- (a) Name and address of person for whom application was made.
- (b) Location where application was made, if different from number 6.03(a).
- (c) Target pest.
- (d) Site, or structure treated.
- (e) Specific pesticide applied.
- (f) Dilution rate.
- (g) Application rate.
- (h) Carrier, if other than water.
- (i) Date and time for application.

### **Pesticide Use Restriction to Protect Surface and Groundwater**

None, beyond restrictions described on the product label.

**Does the state have a groundwater protection program in regard to pesticides?**

The State has regulations (Water Quality Control Act, Title 25, Article 8) pertaining to commercial fertilizers and pesticides at storage facilities and mixing/loading areas. Secondary containment is required for bulk storage in excess of 55 gal. (liquid) in 100 lbs. (dry), with capacity for 125% of the volume of the largest container. Mixing and loading pads are required where at least 500 gal. (liquid) or 3000 lbs. (dry) are handled annually, or where 1500 lbs. of active ingredient or a combination of liquid and dry product is handled annually (These rules do not apply to field mixing and loading). The State is also developing a generic groundwater management plan.

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Pesticide Regulations Office: Colorado Dept. of Agriculture Division of Plant Industry Pesticide/Applicator Section

Contact Person: Steve Blunt Phone: 303-239-4140

Address: 700 Kipling St., Suite 4000, Lakewood, CO. 80215-5894

## Iowa

### **Prohibited Pesticides (State)**

None, other than what EPA bans.

### **Special Requirements For Storage, Use, and Disposal**

#### 21-44.5(206) New Pesticide Storage and Mixing Site Location.

New permanent storage and mixing sites as defined in subrule 44.1(3) shall be selected in accordance with requirements of the Iowa Department of Natural Resources. The new site, if located in a flood plain, shall be protected from inundation from floods. New permanent pesticide storage and mixing sites shall be located a minimum of 400 feet from public water supply wells or below ground level finished water storage facilities and a minimum of 150 feet from private water supply wells.

#### 21-44.6(206) Pesticide Storage and Mixing Site.

Each site shall comply with those ordinances and regulations enacted by the city or county affected by such location that related to the location of such sites. All sites and facilities where flammable pesticides are stored shall comply with state and federal fire protection rules and regulations, including the National Fire Protection Standards (Standard 30) for storage of flammable liquids.

#### 206-15 Licensee to Keep Records.

The secretary shall require commercial applicators and certified commercial applicators to maintain records with respect to application of pesticides. Such relevant information as the secretary may deem necessary may be specified by regulation. Such records shall be kept for a period of three years from the date of the application of the pesticide to which such records refer, and the secretary shall, upon request in writing, be furnished with a copy of such records forthwith.

21-45.50/206 Notification Requirements for Urban Pesticide Applications.

All commercial or public applicators who apply pesticides within urban areas in municipalities shall post or affix notification signs at the start of the application and for at least 24 hours or longer, if required on the label. The sign shall be of a rain resistant material. Signs shall be in contrasting colors, printed in block letters at least one inch. The following information shall be on the notification sign:

- (a) The name and telephone number of the business applying the pesticide; and
- (b) The words: "This area chemically treated, keep off. Do not remove sign for twenty-four hours" (or longer if required). As an alternative, a universally accepted symbol having the same meaning or intent may be used.

After the required posting period has elapsed, all notification signs should be removed.

**Pesticide Use Restrictions To Protect Surface and Groundwater**

21-44.52(200) Design Plans and Specifications.

Design plans and specifications for facilities required under these rules shall be submitted to the Iowa Department of Agriculture and Land Stewardship prior to the start of construction, along with certification from a registered engineer (as defined in Iowa Code chapter 114) that the designed facilities will comply with all requirements of these rules.

A person may deviate from the requirements of these rules if such deviations are clearly noted on the design plans and specifications, along with certification from a registered engineer that these deviations will not reduce the effectiveness of the facilities in protecting surface or groundwaters.

**Does the state have a groundwater protection program in regard to pesticides?**

Have developed a generic plan. Already have Groundwater Protection Act (1987), which provides for fees or sale of pesticides and university research.

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Pesticide Regulations Office: Iowa Dept. of Agriculture Land Stewardship  
Attn.: Pesticide Bureau

Contact Person: Jim Ellerhof Phone: 515-281-8506

Address: Henry A. Wallace Bldg., Des Moines, IA 50319

## **Kansas**

### **Prohibited Pesticides (State)**

#### **2-2471 Rule and Regulation Authority to the Secretary to Limit Pesticide Use.**

Notwithstanding the provisions of K.S.A. 1989 Supp. 2-2470, whenever the secretary deems it necessary to preserve the health, safety, and welfare or the natural resources of the state, the secretary is hereby authorized to promulgate rules and regulations imposing limitations on the use of any pesticide in a manner inconsistent with its label or labeling.

#### **4-13-1 Restricted Pesticide Designation.**

Any pesticide registered by the secretary under provisions of the "agricultural chemical act of 1947" (K.S.A. 2-2204) as amended or supplemented, which is labeled as a restricted use pesticide by the Federal agency responsible for such classification, shall be registered as a restricted use pesticide under the Kansas Pesticide Law.

### **Special Requirements For Storage, Use, and Disposal**

#### **4-13-18 Disposal of Pesticides and Containers.**

Any unused pesticide and any empty pesticide container shall be stored in the same manner as the pesticide involved until such unused pesticide or empty container is disposed of in a manner consistent with technology current at the time of disposal. Questions regarding the latest technology should be directed to the Kansas State Board of Agriculture; Kansas State University, Extension Service; Kansas Department of Health and Environment; or the United States Environmental Protection Agency. No open burning of pesticide containers is allowed.

## 2-2455 Records.

- (d) Each pesticide business licensee shall make available to the secretary upon request, a copy of any written statement of services or contract, records of all pesticide applications during any specified period, records of all employees who performed any service involving, or in conjunction with, the application of pesticides and any other requested information pertinent to the administration of this act or any rule or regulation adopted hereunder by the board.
  
- (e) The secretary shall require certified commercial applicators who are not employed by or otherwise acting for a business licensee to maintain records concerning applications of restricted use pesticides. The secretary shall specify by rules and regulations the information to be contained in such records, which shall be maintained for three years from the date of application of the pesticide concerned. Such records shall be open to inspection by the secretary or the secretary's authorized representative during normal business hours, and copies shall be furnished to the secretary or the secretary's authorized representative upon request.

Regulations were established in 1996 regarding what information must be recorded:

- Business name, address
- Pesticide to be controlled
- Pesticide to be used/quantity/area to be treated
- Pesticide name, EPA Registration No.
- Concentration (rate of application)
- Date, location of application
- Signature of supervisor of application
- Wind direction, velocity
- If application was less than labeled rate

**Does the state have a groundwater protection program in regard to pesticides?**

Still being developed.

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Pesticide Regulations Office: Kansas State Board of Agriculture Division of Plant Health

Contact Person: Dan Tuggle Phone: 785-296-5395

Address: 901 S. Kansas Avenue, Topeka, KS 66612-1281

## **Minnesota**

### **Prohibited Pesticides (State)**

None, other than what EPA bans. Any fungicide containing mercury is prohibited.

### **Special Requirements For Storage, Use, and Disposal**

#### **18B.14 Pesticide Storage.**

##### Subdivision 1. Display Storage.

- (a) A person may store or display pesticides and their containers only in the original container and separated from food, feed, seed, livestock remedies, drugs, plants, and other products or materials stored, displayed, or offered for sale in a manner that prevents contamination which would cause injury or damage to the other products or materials.
- (b) A person may not allow open pesticide containers to be displayed for sale under any circumstances.

##### Bulk Pesticide Storage.

- (a) Secondary containment is required by storing pesticides in amounts of 500 gallons or more and a pesticide storage permit must be obtained from the commissioner.
- (b) Applications must be on forms provided by the commissioner containing information established by rule. Detailed design plans must accompany the application. The initial application for a permit must be accompanied by a nonrefundable application fee of \$100 for each location where the pesticide are stored.
- (c) Containment areas for liquid bulk pesticide loading sites must meet approved design specifications for material, plumbing, etc.

- (d) The operator of a bulk pesticide storage facility shall prepare a written spill response plan, shall keep on site equipment and supplies for spill clean up, and conduct release response training.
- (e) Records of inspections, maintenance, and releases shall be kept on the site or at the nearest office.
- (f) Containers used to store bulk pesticides or pesticide rinsates are considered abandoned if they have been out of service for 6 months because of a weakness or a leak, or for any reason for more than one year.

#### 18B.09 Notification Requirements.

Some cities require any applicator who applies pesticides to turf areas post warning signs on the property. Signs must be at least 15 inches above the grassline, be made of weather-resistant material, and remain in place for up to 48 hours from the time of initial application. The colors format, and specific language are included in the regulation.

#### 18B.07 Pesticide Use.

##### Subdivision 1. Pesticide Use.

Pesticides must be applied in accordance with the product label or labeling and in a manner that will not cause unreasonable adverse effects on the environment within limits prescribed by this chapter and FIFRA.

## Subdivision 2. Prohibited Pesticide Use.

- (a) A person may not use, store, handle, distribute, or dispose of a pesticide, rinsate, pesticide container, or pesticide application equipment in a manner:
  - (1) that is inconsistent with a label or labeling as defined by FIFRA;
  - (2) that endangers humans, damages agricultural products, food, livestock, fish, or wildlife; or
  - (3) that will cause unreasonable adverse effects on the environment.
- (b) A person may not direct a pesticide onto property beyond the boundaries of the target site. A person may not apply a pesticide resulting in damage to adjacent property.
- (c) A person may not directly apply a pesticide on a human by over spray or target site spray.
- (d) A person may not apply a pesticide in a manner so as to expose a worker in an immediately adjacent, open field.

### Posting

If the pesticide labels prescribe hourly or daily intervals for human reentry following application, the person must post sites in accordance with label requirements.

## **Pesticide Use Restrictions to Protect Surface and Groundwater**

### Subdivision 5. Use of Public Water Supplies for Filling Equipment.

A person may not fill pesticide application equipment directly from a public water supply, as defined in section 144.382, unless the outlet from the public water supply is equipped with a back-flow prevention device that complies with the Minnesota Plumbing Code under Minnesota Rules, parts 4715.2000 to 4715.2280.

### Subdivision 6. Use of Public Waters for Filling Equipment.

- (a) A person may not fill pesticide application equipment directly from public or other waters of the state, as defined in section 105.37, subdivision 14, unless the equipment contains proper and functioning antibacksiphoning mechanisms. The person may not introduce pesticides into the application equipment until after filling the equipment from the public waters.
- (b) This subdivision does not apply to permitted applications of aquatic pesticides to public waters.

### Subdivision 7. Cleaning Equipment in or Near Surface Water.

- (a) A person may not:
  - (1) Clean pesticide application equipment in surface waters of the state; or
  - (2) Fill or clean pesticide application equipment adjacent to surface waters, ditches, or wells where, because of the slope or other conditions, pesticides or materials contaminated with pesticides could enter or contaminate the surface waters, groundwater, or wells, as a result of overflow, leakage, or other causes.

- (b) This subdivision does not apply to permitted application of aquatic pesticides to public waters.

**Does the state have a groundwater protection program in regard to pesticides?**

Yes, the Minnesota Groundwater Protection Act of 1989 and a generic State Management Plan.

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Pesticide Regulations Office: Minnesota Dept. of Agriculture Agronomy Services Division

Contact Person: John Sirk Phone: 651-296-4292

Address: 90 W. Plato Blvd., St. Paul, MN 55107

## **Montana**

### **Prohibited Pesticides (State)**

None, other than what EPA bans.

### **Special Requirements For Storage, Use, and Disposal**

Pesticide applicators are required to obtain a license for noncommercial application of EPA restricted pesticides.

The use of pesticides may be regulated by local governments and each county should be contacted for specific regulations.

New rule as of 1/14/99 - must undertake an immediate response to pesticide spills according to local emergency operations plans; can contact local emergency operations or state 24-hour number at 406-444-6911. Must report spills to the Department of Agriculture within 48 hours.

### **Pesticides Use Restrictions to Protect Surface and Groundwater**

None, other than what EPA bans.

### **Does the state have a groundwater protection program in regard to pesticides?**

Yes, see Montana Agricultural Chemical Groundwater Protection Act.

A generic plan has been approved by EPA. A State plan is also in place.

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Pesticide Regulations Office: Montana Department of Agriculture Agricultural and Biological of Science Division

Contact Person: Steve Baril Phone: 406-444-2944

Address: P.O. Box 200201, Capital Station, Helena, MT 59620-0201

## **Nebraska**

### **Prohibited pesticides (State)**

None, other than what EPA prohibits.

### **Special Requirements For Storage, Use, and Disposal**

Secondary containment required for bulk storage of pesticides or anything greater than 55 gallons.

### **Pesticide Use Restrictions to Protect Surface and Groundwater**

Follow label instructions.

### **Does the state have a groundwater protection program in regard to pesticides?**

The State now has authority for its own pesticide program. It has concurrence from EPA on its generic plan.

### **Miscellaneous Information**

#### **PRIORITY OF POTENTIAL NONPOINT PROBLEM AREAS, GUIDING PRINCIPLES**

1. By law, Special Protection Areas (SPA) are to provide for the orderly management of groundwater quality in areas where available data, evidence, and other information indicate that the use of groundwater is currently, or potentially, being impaired by nonpoint source contamination.

Definition:

Special Protection Areas - means any area designated as such by the Directory because of the occurrence or potential occurrence of nonpoint source groundwater contamination. Pesticides - An agent used to destroy pests. A ranking system for pesticides in Nebraska, based on health effects, groups pesticides into three categories: 1) Class I-greatest health threat in classification; 2) Class II-less of a threat than Class 1; and 3) Class III-classifications with the least health threat.

Pesticide Classification Scheme

<u>Oral LD50 (mg/kg)</u>	<u>Pesticide Class</u>
≤79	I
80-899	II
>900	III

An LD50 value is the milligrams (mg) of pesticide per kilogram (kg) of body weight of test species necessary to kill 50 percent of the said species test population. Groupings of pesticides based on this classification scheme are presented in Table 1.

Table 1. Pesticide Groupings (Classes) Based on Oral LD50 Values.

<u>Class I</u>	<u>Class II</u>	<u>Class III</u>
Aldicarb	Bronioyxnil	Benomyl
Carbofuran	Carbaryl	Captan
Crotoxyphos	Chlorpyrifos	Chlorothalonil
Dichlorvos	Diazinon	Dinitramine
Disulfoton	Dimethoate	Malathion
Endrin	Lindane	PCNB
Ethoprop		Perniethrin
Famphur		Piperonyl Butoxide
*Fonofos		Stirofos
Isofenphos		
Methidathion		
Parathion		

Class I  
Phorate  
Terbufos  
Toxaphene  
Warfarin

Class II

Class III

\* - Pesticides already detected in Nebraska's groundwater.

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Pesticide Regulations Office: Department of Agriculture Bureau of Plant Industry

Contact Person: Tim Creger Phone: 402-471-2394

Address: P.O. Box 94756, Lincoln, NE 68509

## **Nevada**

### **Prohibited Pesticides (State)**

None, other than what EPA bans.

### **State Restricted Use Pesticides**

#### **Wood Preservatives**

Pentachlorophenol

### **Special Requirements For Storage, Use, and Disposal**

Label instructions must be followed. Person must be certified. The only requirement for restricted use pesticide is to obtain a certificate from their office.

All services containers of operators working in the field of urban pest control must bear the following labels, securely attached to the containers:

- Name, address and telephone number of the business
- Name of pesticide
- EPA registration number, a state department of agriculture number
- Name and percentage of active ingredient
- Precautionary word from label

All other containers must bear the original label. A complete label must be carried in the vehicle for each pesticide in the vehicle.

## **Hazardous and Injurious Pesticides: Warnings; Applications**

1. All persons engaged in the application of a pesticide which contains carbon bisulfide, chlorate compounds, petroleum oil, sulfur dust, or other flammable or explosive materials shall take reasonable precautions to prevent creating a fire during the application and to provide an adequate warning of such a hazard after the application.
2. After any pesticide containing parathion, methyl parathion or EPN is applied at a rate per acre greater than 1 pound of actual parathion, methyl parathion or EPN, singly or in combination, a posted notice must be kept on the treated property for 2 weeks to provide adequate warnings to persons who enter the property by the point or points of normal entry. The notice must be of such size that it is readable at a distance of 25 feet and must be substantially as follows:

WARNING: DO NOT ENTER THIS PROPERTY  
TREATED WITH (PARATRION) (METHYL  
PARATHION) (EPN) ON .... (date) ....  
ALL PERSONS WARNED TO STAY OUT FOR 2 WEEKS.

## **Pesticide Use Restrictions to Protect Surface and Groundwater**

None other than EPA.

## **Does the state have a groundwater protection program in regard to pesticides?**

Nevada is currently working on a management plan.

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Pesticide Regulations Office: Nevada State Dept. of Agriculture  
State Division of Plant Industry

Contact Person: Charles (Chuck) Moses Phone: 775-688-1180  
x251

Address: 350 Capitol Hill Ave. Reno, NV 89502

## **New Mexico**

### **Prohibited Pesticides (State)**

Follow Federal Restricted Use List.

### **Special Requirements For Storage, Use, and Disposal**

#### **76-4-30 Discarding and Storing of Pesticides and Pesticide Containers.**

No person shall discard, transport or distribute any pesticide or pesticide container in a manner that may cause injury to humans, vegetation, crops, livestock, wildlife or beneficial insects or pollute any waterway.

#### **76-4-33 Records.**

- (a) Any person issued a license or permit under the provisions of the Pesticide Control Act (76-4-1 to 76-4-39 NMSA 1978) shall keep such records as required by regulation of the Board.
- (b) Commercial pesticide applicators licensed under the provisions of the Pesticide Control Act shall keep such records as prescribed by regulation of the board.
- (c) The department shall have access to the records at any reasonable time to copy or make copies of the records for the purpose of carrying out the provisions of the Pesticide Control Act. Unless required for the enforcement of the Pesticide Control Act, the information shall be confidential, and if summarized, shall not identify any individual person.

### **Pesticides Use Restrictions to Protect Surface and Groundwater**

None.

**Does the state have a groundwater protection program in regard to pesticides?**

General plan has been finalized for approval.

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Pesticide Regulations Office: New Mexico Dept. of Agriculture  
Bureau of Pesticide Management

Contact Person: Doug Henson Phone: 505-646-2133

Address: P.O. Box 30005/MSC, 3AQ, Las Cruces, NM  
88003

## **North Dakota**

### **Prohibited Pesticides (State)**

Only those prohibited by the EPA.

### **Special Requirements For Storage, Use, and Disposal**

#### **4-35-20 Discarding and Storing of Pesticides, Pesticide Containers, and Pesticide Rinsate.**

No person may discard, store, display or permit the disposal of surplus pesticides, empty pesticide containers and devices, or pesticide rinsate in such a manner as to endanger the environment or to endanger food, feed, or any other products that may be stored, displayed, or distributed with such pesticides. The board shall promulgate regulations governing the discarding, storage, display, or disposal of any pesticide, pesticide rinsate, pesticide containers, or devices.

#### **60-03-01-06 Application, Storage, and Disposal of Pesticides.**

1. Application.
  - a. All pesticides shall be used in accordance with the label.
  - b. Pesticide applicators and persons assist with an application shall follow all safety precautions as specified on the container label.
  - c. All equipment used in pesticide application must be operationally sound and properly calibrated to prevent unreasonable adverse effects on the environment.
  - d. All pesticides that require posting on the label or with a forty-eight-hour-reentry period or greater must be posted by the applicator or the applicator's designated under contract. The signs must be a minimum of eight inches by eleven inches with on-half-inch lettering and be

easily readable. The signs must be posted at all normal entrances to the field and on all corners which are along normally traveled roads. These signs can be a maximum of one-half mile apart. The sign must contain the following information: Danger field sprayed with (pesticide name). The field is safe for reentry on (date).

## 2. Storage.

- a. All pesticides, except bulk pesticides, shall be stored in their original container and in accordance with label recommendations. All labels of stored pesticides shall be plainly visible. All pesticide containers must have a proper label affixed to them.
- b. All pesticides shall be stored in dry, well-ventilated spaces, and in a manner which will not endanger humans, animals, or the environment, nor contaminate food or feed.
- c. If a storage area contains a floor drain, it must be sealed or self-contained.

## 3. Disposal.

- a. Empty pesticide containers shall be stored in accordance with label recommendations and in a manner which will not endanger humans, animals, or the environment.
- b. Empty nonreturnable pesticide containers shall be triple-rinsed or equivalent. Secondary use of such containers which would endanger humans, animals, or the environment is prohibited.
- c. Pesticide containers shall be disposed of in accordance with label directions and in a manner which will not endanger humans, animals, or the environment.

60-03-01-10 Storage and Transportation of Bulk Pesticides for Each Business Location.

All permanent bulk storage containers must be equipped with a locking withdrawal valve or must be stored in a secure locked area.

Liquid bulk pesticides.

Outdoor storage:

1. Liquid bulk pesticide storage containers must be on a site which has an additional containment structure with a containment capacity of a minimum of one hundred twenty-five percent of the single largest bulk pesticide storage container.
2. Contaminated rainwater must be collected within this structure.

Indoor storage:

Storage facilities located within an enclosed structure must be on a site which has an additional containment structure.

Dry bulk pesticides.

Outdoor storage facilities:

1. Bulk dry pesticide storage facilities must have a six inch (15.24 centimeter) high curb as an additional containment structure. No storage container may be placed closer than three feet (91.44 centimeter) from the curb.

2. Contaminated rainwater must be collected within this structure.

Indoor storage facilities: Storage facilities located in an enclosed structure must have a minimum of a six-inch (15.24 centimeter) curb as an additional containment structure. No storage container may be placed closer than three feet (91.44 centimeters) from the curb, except where the curb is adjacent to a facility wall.

**Pesticide Use Restrictions to Protect Surface and Groundwater**

None other than on label. Should be completed by next year.

**Does the state have a groundwater protection program in regard to pesticides?**

Being developed.

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Pesticide Regulations Office: North Dakota Dept. of Agriculture Pesticide Division

Contact Person: Jeff Olson Phone: 1-800-242-7535

Address: 600 E. Blvd. State Capitol, 6th Floor  
Bismarck, ND 50505-0020

## **South Dakota**

### **Prohibited Pesticides (State)**

None, other than what EPA bans.

### **Special Requirements For Storage, Use, and Disposal**

#### **Storage and Disposal.**

A person shall not construct a bulk pesticide storage facility, for the storage of permanent bulk pesticide storage containers (capable of holding more than 300 gallons), without a means of secondary containment. Plans and specifications for the facility must be submitted to the Secretary of Agriculture for review and approval prior to construction.

After February 1, 1995, operational area requirement is required for any one or more of the following:

- (1) more than a total of 1,500 lbs. of pesticide active ingredient;
- (2) pesticides are cleaned from containers or equipment for over 30 days per year;
- (3) the operational area is within;
  - a) 150 feet of a lake, stream, streambed, or wetland;
  - b) 150 feet of a well;
  - c) 200 feet of commercial or residential premises;
  - d) 500 feet of a well used as a public water supply;

After February 1995, additional containment requirements will be required to contain discharges of pesticides and rinsates.

Also, at this time, all applicators will be required to have pesticide handling and discharge response procedures and plans, and provide annual training on this plan to all employees who use and handle pesticides.

Pesticides may be disposed of by using them for the legal purpose originally intended or returning to manufacturer.

Empty containers must be triple rinsed with the rinsate properly reused as diluent or disposed of. A triple rinsed container may be sold for reconditioning, crushed and sold for scrap or disposed of in a sanitary landfill.

Empty containers may be recycled when they meet the following requirements:

- (1) Triple rinsed or the equivalent.
- (2) Consist of high density polyethylene plastic of 2-1/2 gallon capacity or less.
- (3) No visible pesticide residue inside or outside of the container.
- (4) Contain no more than 0.5 fluid ounces of clear water.
- (5) When possible, be delivered with labels on the container.

No person may dispose of any pesticide, pesticide container, or pesticide container residue so as to cause or allow:

- (1) open dumping,
- (2) open burning,
- (3) water dumping,
- (4) or storage next to food or other articles intended for consumption by humans or animals.

Responsibilities of Certified Applicators.

A certificate or pocket card will be issued to each person who satisfactorily completes the requirements of certification and/or licensing. This card is to be presented to the dealer for proof of current certification to purchase restricted use pesticides. In the case of commercial applicator certification, the dealer will check your card for certification in the proper category to determine your eligibility to purchase and use a particular pesticide.

**Pesticide Use Restraints To Protect Surface and Groundwater**

Not beyond label instruction.

**Does the state have a groundwater protection program in regard to pesticides?**

Generic plan has been submitted.

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Pesticide Regulations Office: South Dakota Dept. of Agriculture, Division of Regulatory Services Office of Agronomy Services

Contact Person: Brad Berven Phone: 605-773-3724

Address: 445 E. Capitol, Pierre, SD 57501

## Texas

### Prohibited Pesticides (State)

Chlordane

### State Limited Use Pesticides

2,4-D, 2,4-DB, 2,4-DP, 2,4,5-T(Silvex), MCPA, Dicamba, Propanil, Arsenic Acid, Bromacil, Prometon

### Special Requirements For Storage, Use, and Disposal

#### Section 7.21 Storage and Disposal of Pesticides.

- (a) No person may dispose of, discard, or store any pesticide or pesticide container in a manner that may cause or result injury to humans, vegetation, crops, livestock, wildlife, pollinating insects, or pollution of any water supply or waterway.
- (b) Pesticides intended for distribution or sale must be displayed or stored within an enclosed building or fenced area, and may not be displayed on sidewalks, parking lots, or similar open areas without surveillance.
- (c) Pesticides in leaking, broken, corroded, or otherwise unsafe containers, or with illegible labels shall not be displayed or offered for sale. Such containers will be handled in a manner to prevent environmental contamination prior to proper disposal or return to manufacturer.
- (d) Pesticide containers, concentrates, spray mixes, container rinsate, and/or spray system rinsates that are to be discarded shall be disposed of in accordance with pesticide label directions or in accordance with the provisions of the Texas Solid Waste Disposal Act (Texas Civil Statutes Article 4477-7).

- (e) The applicator, the owner of the pesticide, and/or the person in control of the mixing site, shall be jointly and severally liable for proper storage and disposal of pesticide containers and contents. It will be acceptable for any one of the parties involved to assume liability for compliance.
- (f) All pesticide dealers shall have a list of poison control centers in the state to contact in the case of pesticide poisoning. Must be certified to use a certain herbicide.

### **Pesticide Use Restraints To Protect Surface and Groundwater**

Check with individual counties.

### **Does the state have a groundwater protection program in regard to pesticides?**

General plan submitted to EPA. There may be some county-level regulations.

\*Texas has separate herbicide and pesticide regulations.

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Pesticide Regulations Office: Texas Dept. of Agriculture Pesticide Regulation Division

Contact Person: Phil Tham Phone: 512-475-1626

Address: P.O. Box 12847, Austin, TX 78711

Groundwater Regulations: Texas Natural Resource Conservation Commission

Contact Person: Annie Tyrone Phone: 512-239-4509

Address: P.O. Box 13087, Austin, Texas 78711

## Utah

### Prohibited Pesticides (State)

None, other than what EPA bans.

### Special Requirements For Storage, Use, and Disposal

None

#### R68-07-04 Classification of Pesticides.

The Commissioner shall classify all pesticide products registered in Utah for "restricted use" or "general use" according to standards consistent with Section 3 of FIFRA. The Commissioner shall consider as a minimum all pesticides and uses classified as restricted by EPA to be restricted in the State of Utah. He may restrict the use of additional pesticides if he finds that the characteristics of such pesticides require that their uses be restricted to prevent damage to property other than the property to which they are directly applied or to persons, animals, crops or vegetation other than the pests which they are intended to destroy. Individuals not appropriately certified are prohibited from using restricted use pesticides, with the exception of those exempted in Section 6.a.(b) of these rules and competent individuals working under the direct supervision of a certified private applicator.

#### R68-7-10 Storage and Disposal of Pesticides and Pesticide Containers.

No person shall transport, store, or dispose of any pesticide or pesticide containers in such a manner as to cause injury to humans, vegetation, crops, livestock, wildlife, beneficial insects or to pollute any waterway in a manner harmful to any wildlife therein.

## **Pesticide Use Restrictions To Protect Surface and Groundwater**

None beyond label requirements. There is an endangered species plan that relates to the use of pesticides (1/1/97).

## **Does the state have a groundwater protection program in regard to pesticides?**

A generic plan has been approved by EPA.

### R68-7-11 Unlawful Acts.

- Refused or neglected to keep and maintain the required records.
- For an employer of a non-commercial applicator to allow an employee to apply any pesticide before that individual has successfully completed the certification procedures.
- For a pesticide applicator not to have in possession a current copy of their license.

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Pesticide Regulations Office: Plant Industry

Contact Person: Clark Burgess Phone: 801-538-7188

Address: 350 N. Redwood Road, Box 146500  
Salt Lake City, UT 84114-6500

## **Wyoming**

### **Prohibited Pesticides (State)**

None, other than what EPA bans.

### **Special Requirements For Storage, Use, and Disposal**

#### **Storage and Disposal of Pesticides and Pesticide Containers.**

- (a) All certified pesticide applicators shall store all pesticide concentrates and dilute mixtures using methods which are reasonably calculated to prevent the contamination of other products by means of volatilization, leakage, breakage, or other causes, and which are reasonably calculated to avoid the creation of an unreasonable risk of harm to persons, property, domestic/wild animals, or the environment.
- (b) Pesticide storage areas shall be kept clean and orderly, and pesticide containers shall be positioned so that they are not exposed to unreasonable risk of damage to the containers or their labels.
- (c) Pesticides and pesticide containers shall be covered or otherwise protected from the elements, in a manner which is reasonably calculated to minimize the risk of damage to labels, and to avoid the creation of an unreasonable risk of harm to persons, property, or domestic/wild animals.

Use label for application. Licensing of applicators is required.

### **Pesticide Use Restrictions To Protect Surface and Groundwater**

No. Use label instructions.

**Does the state have a groundwater protection program in regard to pesticides?**

A generic plan has been finalized.

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Pesticide Regulations Office: Wyoming Dept. of Agriculture  
Director of Technical Services

Contact Person: Jim Bigelow Phone: 307-777-6590

Address: 2219 Carey Ave., Cheyenne, WY 82002-0100

**APPENDIX B**  
**EMPLOYEE PROTECTION FROM**  
**HANTAVIRUS EXPOSURE**

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## **EMPLOYEE PROTECTION FROM HANTAVIRUS EXPOSURE**

This memorandum and policy is to provide a guidance to reduce the potential for Western employees to come into contact with the hantavirus.

In the last few years there has been a great deal of publicity about non-occupational exposures to the hantavirus. Much of the initial focus concerned the Four Corners area (Colorado, New Mexico, Arizona, and Nevada). Subsequent testing has shown the virus exists in a wide range which includes much of Western's working area. The virus is typically carried by the deer mouse, commonly known as the field mouse, and is transmitted through the urine and/or feces of the rodent. Individuals who have contracted the viral disease typically were found to live near or have been exposed to the dust from a rodent-infested environment.

The keys to controlling exposure are the elimination of the conditions that attract the rodent and to prevent the inhalation of the potentially contaminated dust during control building work. Detection of the virus in dust samples or even in the rodent population requires complicated laboratory tests and the results can be inconclusive. Exposure to the virus can be eliminated through good personal hygiene and the use of the appropriate personal protective equipment (PPE).

### **PERSONAL PROTECTIVE EQUIPMENT**

The wearing of a combination of PPE during clean-up operations is required to adequately protect against hantavirus exposure. Respirators, eye protection, gloves and coveralls are required.

- A. Respirator selection and use must be in accordance with WAPA Order 3790.1. The single greatest source of protection is a half-mask negative pressure air-purifying respirator with High Efficiency Particulate Air (HEPA) filters. Disposable half-mask respirators are acceptable if they carry the NIOSH/MSHA approval for HEPA capability.

- B. Gloves are to be worn that are either chemical resistant latex or nitrile material to prevent skin contact. Disposable gloves are preferred to eliminate the necessity of having to later disinfect them.
- C. Disposable coveralls are required to prevent contamination of street or work clothes and to prevent the possibility of taking the contaminant home. Tyvek-brand coveralls or other similar disposable brands are acceptable.
- E. Eye protection in the form of non-vented goggles is required.

### **CLEAN-UP PROCEDURES**

Rodent fecal material and other suspect debris must never be dry swept. Thoroughly wet the material with a chlorine bleach solution made from one cup of household variety bleach to one gallon of water. Material safety data sheets must be available for any container of bleach. Sweep the rodent or fecal material into a plastic bag and seal it for disposal. In situations where sweeping or scooping is not practical the debris may be removed with a HEPA vacuum. Dispose of the HEPA vacuum filters in the same manner as the rest of the debris. Decontaminate the vacuum hose and its accessories by immersing in the disinfectant bleach solution.

When the clean-up is completed discard respirator cartridges (or disposable masks), coveralls, gloves and cleaned-up material into a plastic bag, seal and dispose in a sanitary landfill. Nondisposable respirators and eyewear can be disinfected and reused.

### **RODENT CONTROL**

- A. Seal electric conduit trenches and raceways into control buildings with expandable foam, duct seal, steel wool, pea gravel or any combination if compatible. Seal any other openings with a diameter greater than a quarter inch, such as door jams, with a silicone sealant.

- B. Dispose of any trash or food waste the same day that it is generated to an appropriate sealed trash container to discourage rodent harborage.
- C. Elevate materials and supplies six inches off the floor and away from walls to enable cleaning without having to physically move items.
- D. The use of anticoagulant poison baits is also recommended to control rodent populations.
- E. Apply single-dose poisons such as zinc phosphide every 6-12 months to kill those rodents that have developed a resistance to anticoagulants. See your environmental representative for a list of rodenticides that have been registered for use for controlling rodents.

**APPENDIX C**  
**ANIMAL REPELLENT INFORMATION**

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Repel with  
**RO-PEL**<sup>®</sup>  
Simple, Safe, Quiet



Nixalite of America Inc offers a full line of Ropel repellent products for safe, easy, quiet and inexpensive control of pest animals, rodents and birds.

**Animal, rodent and bird liquid repellent:**

Ropel spray combines the most bitter and vile substance ever discovered with a special non-toxic solvent system to allow it to penetrate or adhere to the surfaces of many different objects. It remains on or in the surface despite rain, snow, dust, wind or dirt. Ropel is safe and effective when used as directed on siding, fences, posts, footings, unpainted furniture, trees, saplings, plants, bulbs and seeds.

When animals try to lick, bite, nibble, peck or chew treated surfaces, they get a bitter reminder that this property is off limits. It has been tested against cattle, deer, dogs, goats, gophers, mice, moles, opossum, rabbits, raccoons, rats, seagulls, skunks, squirrels, woodpeckers, etc.. and can keep them away for up to a year.

**Garbage Ropel liquid repellent:**

Specifically designed to adhere to plastic surfaces while still offering the great advantages of the liquid Ropel spray. Treat garbage bags, cans and plastic dumpsters effectively to stop nuisance pests from raiding the garbage. Non-toxic.

**Ropel Lawn and Garden granular repellent:**

Simple to apply aromatic barrier against destructive and odorous violation (excrement, urine, waste, etc..) of lawns, flower gardens, hedges, trees and shrubs.

For more information on Ropel products, application, container size, coverage rates or pricing, please call, fax or e-mail Nixalite of America Inc.

 **Nixalite**<sup>®</sup> of America Inc  
1025 16th Avenue East Moline, IL. 61244  
Ph:309/755-8771 Fax:309/755-0077  
Experts In Bird Control Since 1950

Ph:800/624-1189 Fax:800/624-1196  
Website - <http://www.nixalite.com>  
E-mail - [nixalite@qconline.com](mailto:nixalite@qconline.com)

# RO-PEL Application Information

1. RO-PEL is formulated as a ready to use product and should be used full strength without dilution.
2. Use the self contained trigger sprayer included with the quart size or any conventional pesticide sprayer to apply RO-PEL. Do not use mist blowers or ultra low volume applicators.
3. RO-PEL must be thoroughly applied to the parts of the plants or surfaces of the objects which are to be protected. RO-PEL should be sprayed on similar to other pesticides by thoroughly wetting or coating the surface to the point of run off.
4. For best results, a second application three to seven days following the initial one is recommended.
5. The same guidelines for the application of any pesticide apply to RO-PEL. Apply only to dry plant tissue and allow material to dry before irrigating. DO NOT apply RO-PEL if rain or snow is expected within eight hours. Applying RO-PEL in the morning with temperatures expected to rise will insure rapid drying. DO NOT apply RO-PEL when the temperatures and/or humidity are excessively high. DO NOT apply to stressed plants.
6. RO-PEL is a contact repellent. All surfaces to be protected must receive treatment. Any new growth, both foliage and floral must be treated in order to be protected.
7. For plants with waxy surfaces, particularly the broad leaf evergreens, the addition of a spreader sticker is recommended. This will prevent RO-PEL from running off and allow the active ingredient to penetrate the plant tissues' surfaces.
8. Apply RO-PEL when temperatures are above freezing. At temperatures below freezing the plant tissue can be frozen and will resist RO-PEL's penetrating action.
9. Animals that are starving to death, particularly during the winter season, might in spite of RO-PEL's vile side effects, continue eating. This can be true when other food sources are either limited or unavailable in the area. Starving animals have been known to eat their own feces or resort to cannibalism. RO-PEL is most effective when an alternate food source is available. Additional saturation with RO-PEL can be tried in the hope of warding off animals. Should this not work however, there is very little that can be done short of trapping and relocating the animals.
10. NEVER mix RO-PEL with other chemicals or use it on an area that has been treated with other chemicals, since they can have a catalytic and/or deleterious effect on the active ingredients in RO-PEL. If the active ingredients in RO-PEL are neutralized, the product will be rendered useless and ineffective. If properly applied however, RO-PEL can last a season or longer.

11. RO-PEL is a contact repellent. An animal has to experience RO-PEL's obnoxiously vile, bitter taste before it will stop chewing and go on to something more palatable. This presents no problem when an animal takes a bite out of a mature plant. A bite taken out of a taxus shrub for instance, will hardly be noticed, but just one bite taken out of a newly planted petunia seedling can reduce the plant to a nub. Even in the case of the mature taxus, if a large herd of deer are present and each one takes just one bite, the RO-PEL may work but the poor shrub will still show the results of this taste testing.

Along these same lines all the animals in the herd or colony must experience RO-PEL's vile taste. Animals which have tasted RO-PEL might have left the area only to be replaced by those who haven't as yet, leaving the applicator to assume that the product isn't working, when in fact it is.

12. RO-PEL should be used on non-edible crops only. Although safe, RO-PEL's unique long-term penetrating ability can ruin the taste of fruits and vegetables. RO-PEL can safely be used year round on non-bearing fruits and during the dormant season on bearing fruits. RO-PEL should not be used on sugar maple trees if the sap is to be harvested.

13. In the event the surface designated for application is non-porous (such as plastic, epoxy, vinyl, etc.), it is unlikely that RO-PEL will be able to penetrate and/or stick to the surface for lengthy periods of time. Constant re-application or painting the surface with a shellac, vinyl, urethane, varnish or an acrylic-type finish, ( incorporating RO-PEL into the formula ), has been used to achieve satisfactory results. A commercial spreader sticker, added to RO-PEL, is another possible alternative.

14. Although RO-PEL has proven non-phytotoxic to hundreds of commonly grown plants, it is best to test it on a single plant or area before widespread application begins. Particular caution should be observed when applying RO-PEL to any plants which are known to be sensitive to standard garden chemicals.

A test should also be made when other chemicals will be applied, either prior to or after the application of the RO-PEL. It is advisable to apply RO-PEL first, letting it thoroughly dry before using any other chemicals.

### Coverage Rates

1 Quart (946 ml.)	150 sq.ft.
1 Gallon (3.78 liters)	600 sq.ft.

These coverage rates depend on surface conditions and the porosity of the items being treated.



**NIXALITE® of AMERICA INC**

P.O. BOX 727 EAST MOLINE, IL. 61244

309/755-8771 FAX 309/755-0077

800/624-1189 FAX 800/624-1196

**SPECIALISTS IN BIRD CONTROL**

Nixalite® is a federally registered trademark of Nixalite® of America Inc.

# MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1918, 1917)

## SECTION I

MANUFACTURER'S NAME Burlington Scientific Corporation		EMERGENCY TELEPHONE NO. 516-694-9000
ADDRESS (Number, Street, City, State, and ZIP Code) 91 Carolyn Blvd., Farmingdale, New York 11735-1527		
CHEMICAL NAME AND SYNONYMS Assorted Quaternary Compounds & Bittering Agents		TRADE NAME AND SYNONYMS RO-PEL
CHEMICAL FAMILY ANIMAL REPELLENT	FORMULA Mixture of Active Ingredients	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS Penetrating		13	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES		05	OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NON-HAZARDOUS					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	266 <sup>0</sup>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.98 g/cc
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ 1)	
SOLUBILITY IN WATER	soluble		
APPEARANCE AND ODOR	colorless solution slight sulfhydryl odor		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Let	Uel
EXTINGUISHING MEDIA	Non-Flammable		
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

### SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

EYES - Flush with water and obtain medical advice

SKIN - Wash with isopropyl alcohol, then soap and water

INGESTION - Rinse mouth with mouthwash, obtain medical advice

### SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Flush away with copious amounts of water, wash down area thoroughly with water

WASTE DISPOSAL METHOD

Clean area with thorough washing and rinsing. Use Deconex laboratory detergent to remove any residues that might remain.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	Recommended	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		Recommended

### SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING  
Avoid Heat and Intense light

OTHER PRECAUTIONS  
Extremely bitter, do not ingest. Avoid contact with skin, eyes or mouth.

**APPENDIX D**  
**SPECIMEN LABELS - TERMITICIDES**

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Code 1350

Net Contents

# BIFLEX<sup>®</sup> TC Termiticide

Only for Sale to, Use and Storage by Professional Pest Control Operators.

EPA Reg. No. 279-3112

EPA Est. 279-FL-1

Active Ingredient:	By Wt.
Bifenthrin: (2 methyl[1,1'-biphenyl]-3-yl) methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethyl-cyclopropanecarboxylate*	25.1%
Inert Ingredients**	74.9%
	<hr/> 100.0%

\*\*Cis isomers 97% minimum, trans isomers 3% maximum.

\*\*Contains xylene range aromatic solvents.

This product contains 2 pounds active ingredient per gallon.

U.S. Patent No. 4,238,505

## KEEP OUT OF REACH OF CHILDREN WARNING

This label must be in the possession of the user at the time of application.

### STATEMENT OF PRACTICAL TREATMENT

**If Swallowed:** Call a Poison Control Center or physician promptly for advice. Drink plenty of water. Do not induce vomiting unless advised by a physician or qualified medical advisor. Do not induce vomiting or give anything by mouth to an unconscious person.

**If Inhaled:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

**If on Skin:** Wash with plenty of soap and water. Get medical attention if irritation persists.

**If in Eyes:** Flush with plenty of water. Call a physician if irritation persists.

#### Note to Physician:

Pesticide Hotline (800) 858-7378. This product is a pyrethroid. This product also contains aromatic hydrocarbons. Because of the risk of hydrocarbon pneumonitis if even tiny amounts are aspirated into the lung during emesis, consideration should be given to gastric lavage with endotracheal tube in place. Treatment is symptomatic and supportive. Animal and vegetable fats, milk, cream and alcohol may increase absorption and should not be administered.

For Emergency Assistance Call (800) 331-3148

See other panels for additional precautionary information.



FMC Corporation  
Agricultural Chemical Group  
Philadelphia PA 19103

1/95

## PRECAUTIONARY STATEMENTS Hazards to Humans (and Domestic Animals)

### Warning

May be fatal if swallowed. Harmful if inhaled, or absorbed through skin. Causes moderate eye irritation. Applicator must wear long sleeve shirt and trousers. Mixers and loaders must wear long sleeve shirt, trousers, chemical resistant gloves and goggles, or face shield. Avoid breathing vapor or spray mist and contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash contaminated clothing before reuse.

### Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. Use care when applying in areas adjacent to any body of water. Do not apply directly to water. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters.

Do not apply this product or allow it to drift to crops or weeds on which bees are actively foraging. Additional information may be obtained from your Cooperative Extension Service.

### Physical/Chemical Hazards

Do not use or store near heat or open flame.

### DIRECTIONS FOR USE

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

### STORAGE AND DISPOSAL

#### Pesticide Storage

Do not freeze. Do not store below 40°F. If crystals are observed, warm material to above 60°F by placing container in warm location. Shake or roll container periodically to redissolve solids. Do not use external source of heat for warming container.

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: (800) 331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter, commercial clay or gel absorbent. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

#### Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

#### Container Disposal

Metal or Plastic Container: Triple rinse (or equivalent) then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Do not cut or weld metal containers.

Returnable/Refillable Containers: Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

## General Information on the Use of this Product

The use of this product prevents and controls termite infestations in and around structures and constructions.

The dilute insecticidal emulsion must be adequately dispersed in the soil to establish a barrier between the wood and the termites in the soil. As a good practice: 1) all non-essential wood and cellulose containing materials, should be removed from around foundation walls, crawl spaces, and porches; 2) eliminate termite access to moisture by repairing faulty plumbing and/or construction grade. Soil around untreated structural wood in contact with soil should be treated as described below.

To establish an effective insecticidal barrier with this product the service technician must be familiar with current termite control practices such as: trenching, rodding, sub-slab injection, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray applications to infested or susceptible wood. These techniques must be correctly employed to prevent or control infestations by subterranean termites such as: *Coptotermes*, *Heterotermes*, *Reticulitermes* and *Zootermopsis*. The biology and behavior of the species involved should be considered by the service technician in determining which control practices to use to eliminate or prevent the termite infestation.

Choice of appropriate procedures should include consideration of such variable factors as the design of the structure, location of heating, ventilation, and air conditioning (HVAC) systems, water table, soil type, soil compaction, grade conditions, and location and type of domestic water supplies and utilities.

For advice concerning current control practices with relation to specific local conditions, consult resources in structural pest control and state cooperative extension and regulatory agencies.

## Subterranean Termite Control

### Directions For Use

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

**Important:** Contamination of public and private water supplies must be avoided by following these precautions: Use anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies. Do not treat soil beneath structures that contain cisterns or wells. Do not treat soil that is water saturated or frozen. Consult state and local specifications for recommended distances of wells from treated areas, or if such regulations do not exist, refer to Federal Housing Administration Specifications (H.U.D.) for guidance.

**Note:** Crawl spaces are to be considered inside of the structure.

**Critical Areas:** Critical areas include areas where the foundation is penetrated by utility services, cracks and expansion joints, bath traps and areas where cement constructions have been poured adjacent to the foundation such as stairs, patios and slab additions.

### Application Rate:

Use a 0.06% emulsion for subterranean termites. For other pests on the label use specific listed rates.

### Mixing:

For the desired application rate, use the chart below to determine the amount of Biflex TC for a given volume of finished emulsion:

Amount of Biflex TC		
Emulsion Concentration	0.06%	0.12%*
Desired Gallons of Finished Emulsion		
1	0.32 oz.	0.64 oz.
5	1.6 oz.	3.2 oz.
10	3.2 oz.	6.4 oz.
25	8 oz.	0.5 qt.
50	0.5 qt.	1 qt.
75	0.75 qt.	1.5 qt.
100	1 qt.	2 qt.
150	1.5 qt.	3 qt.
200	2 qt.	4 qt.

Common units of measure:

1 pint = 16 fluid ounces (oz.)

1 quart = 2 pints = 4 cups = 32 fluid ounces (oz.)

\*For termite applications, only use this rate in conjunction with the application volume adjustments as listed in the section below or in the foam or underground service application sections.

**Application Volume:** To provide the greatest protection against termite reinfestation it is important to apply as close to labeled volume of the finished emulsion as is practicable. To ensure thorough and complete coverage in different soil types, it may become necessary to adjust the volume being applied. In situations such as clay-type soils which will not accept large amounts of water, reduced volumes can be used which will deliver the appropriate concentration of termiticide in the soil. This would also apply to sensitive areas and/or horizontal applications where less

volume may be desirable. Where necessary, the volume of the emulsion may be reduced by 1/2 the labeled rate but with corresponding increasing Biflex TC. See Table.

Where desirable for pre and post construction treatments, the volume of the 0.12% emulsion may be reduced by 1/2 the labeled volume. See Volume Adjustment Chart below.

**Note:** When volume is reduced, the hole spacing for subslab injection and soil rodding may require similar adjustment to account for lower volume dispersal of the termiticide in the soil.

Volume Adjustment Chart		
Rate (% emulsion)	.06%	.12%
Volume allowed		
Horizontal (gallons emulsion/10 ft <sup>2</sup> )	1.0 gallons	0.5 gallons
Vertical (gallons emulsion/10 lin. ft.)	4.0 gallons	2.0 gallons

**After Treatment:** Securely plug all holes drilled in construction elements of living areas of home after application.

## Pre-Construction Subterranean Termite Treatment

**Pre-Construction Treatment:** Pre-construction treatments are defined to include treatments made during all phases of construction up to when the concrete slab is poured.

Effective pre-construction subterranean termite control is achieved by the establishment of vertical and/or horizontal insecticidal barriers using 0.06% emulsion of Biflex TC. To meet termite proofing requirements, follow the procedures in the latest edition of the Housing and Urban Development Minimum Property Standards (refer to U.S.D.A. Home and Garden Bulletin No. 64).

### Horizontal Barriers

Create a horizontal barrier wherever treated soil will be covered by a slab, such as footing trenches, slab floors, carports, and the soil beneath stairs and crawl spaces.

To produce a horizontal insecticidal barrier, apply the emulsion at the rate of 1 gallon per 10 square feet to fill soil. If fill is washed gravel or other coarse material, apply at 1.5 gallons of emulsion per 10 square feet so that the emulsion will reach the soil beneath the fill. Applications shall be made by a low pressure spray (less than 50 p.s.i.) using a coarse spray nozzle. If slab will not be poured the same day as treatment, cover treated soil with a water-proof barrier such as polyethylene sheeting. This is not necessary if foundation walls have been installed around the treated soil.

### Vertical Barriers

Vertical barriers should be established in areas such as around the base of foundations, plumbing, utility entrances, back-filled soil against foundation walls and other critical areas.

To produce a vertical barrier in soil, apply the emulsion at a rate of 4 gallons per 10 linear feet per foot of depth. Distribute the treatment as evenly as possible.

a. When rodding or trenching, it is important that emulsion reaches the top of the footing. Rod holes should be spaced to provide a continuous insecticidal barrier.

b. Care should be taken to avoid soil wash-out around the footing.

c. Trenches need not be wider than 6 inches. Emulsion should be mixed with the soil as it is being replaced in the trench.

d. For a monolithic slab, an inside vertical barrier may not be required.

Hollow block voids may be treated at a rate of 2 gallons of emulsion per 10 linear feet so that the emulsion will reach the top of the footing.

## Post Construction Subterranean Termite Treatment

Use a 0.06% emulsion for post-construction treatment. Post-construction soil applications shall be made by injection, rodding, and/or trenching or coarse fan spray with pressures not exceeding 25 p.s.i. at the nozzle. Care should be taken to avoid soil wash-out around the footing.

Do not apply emulsion until location of wells, radiant heat pipes, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these elements.

### Slabs

Vertical barriers may be established by sub-slab injection within the structure and rodding and/or trenching outside at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Special care must be taken to distribute the treatment evenly. Treatment should not extend below the bottom of the footing.

Treat along the outside of the foundation and where necessary beneath the slab on the inside of foundation walls. Treatment may also be required beneath the slab along both sides of interior footing-supported

walls, one side of interior partitions and along all cracks and expansion joints. Horizontal barriers may be established where necessary by long-rodging or by grid pattern injection vertically through the slab.

- a. Drill holes in the slab and/or foundation to allow for the application of a continuous insecticidal barrier.
- b. For shallow foundations (1 foot or less) dig a narrow trench approximately 6 inches wide along the outside of the foundation walls. Do not dig below the bottom of the footing. The emulsion should be applied to the trench and soil at 4 gallons of emulsion per 10 linear feet per foot of depth as the soil is replaced in the trench.
- c. For foundations deeper than 1 foot follow rates for basement.
- d. Exposed soil and wood in bath traps may be treated with a 0.06% emulsion.

#### Basements

Where the footing is greater than 1 foot of depth from grade to the bottom of the foundation, application can be made by trenching and/or rodging at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Sub-slab injection may be necessary along the inside of foundation walls, along cracks and partition walls, around pipes, conduits, piers, and along both sides of interior footing-supported walls.

#### Crawl Spaces

In crawl spaces vertical barriers may be applied at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth from grade to top of footing. Application may be made by rodging and/or trenching. Wear unvented goggles and a respirator approved by the Mine Safety and Health Administration during treatment. If adequate ventilation is not available in the crawl space, see point 'c' below. Treat both sides of the foundation and around all utility services.

- a. Rod holes should be spaced to provide a continuous insecticidal barrier. Treatment should not extend below the footing.
- b. Trenches need not be wider than 6 inches and not below the footing. The emulsion should be mixed with the soil as it is replaced in the trench.
- c. It is recommended that inadequately ventilated crawl spaces be brought into compliance with FHA Minimum Property Standards specifying 1 square foot of ventilator opening per 150 square feet of crawl space area.
- d. For inaccessible crawl spaces, drill through the foundation wall or through the floor above and treat the soil perimeter at a rate of 4 gallons of emulsion per 10 linear feet per foot of soil depth. Apply to the soil surface of the crawl space with a course spray with pressures not exceeding 25 p.s.i. at the nozzle. Apply at the rate of 1 gallon of emulsion per 10 square feet.
- e. To prevent subterranean termites from constructing mudtubes from soil to crawl space wood members above, an overall soil treatment of this product may be applied. Remove all cellulose debris before application. Apply 1 gallon of emulsion per 10 square feet.

When treating plenums or crawl spaces, turn off the air circulation system of the structure until application-generated dust or spray mist has settled. Wear respiratory protection when treating crawl spaces.

**Note:** If treatment method "d" or "e" is used children and pets should be kept out of treated area in crawl space until surface is dry.

#### Masonry Voids

Treatment may be made through masonry voids such as concrete blocks and veneer to establish a continuous insecticidal barrier at the top of the footing. Apply at the rate of 2 gallons of emulsion per 10 linear feet. Where this treatment is necessary, access holes in the blocks must be drilled below the sill plate and as close as possible to the footing as is practical.

**Note:** When treating behind veneer care should be taken not to drill beyond the veneer. If concrete blocks are behind the veneer, both the blocks and the veneer may be drilled and treated at the same time.

#### Excavation Technique

If treatment must be made in difficult situations such as near wells, cisterns, along fieldstone or rubble walls, along faulty foundation walls, and around pipes and utility lines which lead downward from the structure to a well or pond, application may be made in the following manner:

- a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material.
- b. Treat the soil at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth of the trench. Mix the emulsion thoroughly into the soil taking care to prevent liquid from running off the liner.
- c. After the treated soil has absorbed the liquid emulsion, replace the soil in the trench.

Prior to using this technique near wells or cisterns, consult state, local or federal agencies for information regarding approved treatment practices in your area.

**Attention:** When applying Biflex TC in a confined area, the user should wear unvented goggles and a respirator approved by the Mine Safety and Health Administration during application.

#### Foam Applications

Biflex TC termiticide emulsion 0.06 to 0.12 % may be converted to a foam with expansion characteristic from 2 to 20 times and the foam used to treat voids to control or prevent termite, ant, bee or wasp infestations.

#### Application Under Slabs or to Soil in Crawl Spaces:

Application must be made using Biflex TC foam in combination with liquid emulsion applications. At least 75% of the labeled liquid emulsion volume of termiticide must be applied.

#### Application to Other Voids:

Application may be made behind veneers, piers (concrete or wood), chimney bases, into rubble foundations, into block voids, structural voids (i.e., between stud walls), poles, stumps, and wood in crawl spaces using the foam alone or in combination with liquid emulsion.

#### Sand Barrier Installation and Treatment

Termites can build mud tubes over treated surfaces as long as they have access to untreated soil and do not have to move Biflex TC treated soil. Fill in cracks and spaces with builder's or play box sand and treat the sand with Biflex TC. The sand should be treated as soil following the termiticide rate listed on the Biflex TC label.

**Retreatment Restrictions:** Retreatment for subterranean termites should be made when there is evidence of reinfestation subsequent to the initial treatment, or there has been a disruption of the chemical barrier in the soil due to construction, excavations, landscaping, etc. Retreatments should be made as a spot treatment to these areas.

Retreatments may be made to vulnerable areas in accordance with the application techniques described above. This application should be made as a spot treatment to these areas. Routine or annual retreatment of the entire premises should be avoided.

## Specific Pest Control Applications

**Underground Services** such as: wires, cables, utility lines, pipes, conduits, etc. Services may be within structures or located outside structures, in right-of-ways or to protect long range (miles) of installations of services.

Soil treatment may be made using 0.06 to 0.12% Biflex TC emulsion to prevent attack by termites and ants.

Apply 2 gallons of emulsion per 10 linear feet to the bottom of the trench and allow to soak into the soil. Lay services on the treated soil and cover with approximately 2 inches of fill soil. Apply another 2 gallons per 10 linear feet over the soil surface to complete the treatment barrier. In wide trenches, only treat the soil in the area near the services. It is important to establish a continuous barrier of treated soil surrounding the services.

Where soil will not accept the above labeled volume, 1 gallon of 0.12% Biflex TC may be used per 10 linear feet of trench both to the bottom of the trench and over the soil on top of the services.

Finish filling the trench with untreated fill soil. The soil where each service protrudes from the ground may be treated by trenching/rodging of no more than 1 to 2 gallons of emulsion into the soil.

#### Precautions:

Do not treat electrically active underground services.

#### Posts, Poles, and Other Constructions

Create an insecticidal barrier in the soil around wooden constructions such as signs, fences and landscape ornamentation by applying a 0.06% emulsion.

Previously installed poles and posts may be treated by sub-surface injection or treated by gravity-flow through holes made from the bottom of a trench around the pole or post. Treat on all sides to create a continuous insecticidal barrier around the pole. Use 1 gallon of emulsion per foot of depth for poles and posts less than six inches in diameter. For larger poles, use 1.5 gallons of emulsion per foot of depth. Apply to a depth of 6 inches below the bottom of the wood. For larger constructions use 4 gallons per 10 linear feet per foot of depth.

#### Treatment of Wood-in-Place for Control of Wood-Infesting Insects (Localized Areas in Structure)

For the control of insects such as termites, ants, carpenter ants, and wood-infesting beetles such as Old House Borer and Powder Post in localized areas of infested wood in and around structures, apply a 0.06% emulsion to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is vulnerable. Paint on or fan spray applications may also be used. Plastic sheeting must be placed immediately below overhead areas that are spot treated except for soil surfaces in crawl spaces. Application may be made to inaccessible areas by drilling, and then injecting emulsion with a crack and crevice injector into the damaged wood or void spaces. This type of application is not intended to be a substitute for soil treatment, mechanical alteration or fumigation to control extensive infestation of wood-infesting insects.

Termite carton nests in trees or building voids may be injected with 0.06% emulsion. Multiple injection points to varying depths may be necessary. It is desirable to physically remove carton nest material from building voids when such nests are found.

**Control of Bees and Wasps Indoors:** To control bees, wasp, hornets, and yellow-jackets apply a 0.06% emulsion. Application should be made in the late evening when insects are at rest. Spray liberally into hiding and breeding places, especially under attic rafters, contacting as many insects as possible. Repeat if necessary.

**Important:** Do not apply emulsion until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these structural elements. Do not apply into electrical fixtures, switches, or sockets.

In the home, all food processing surfaces and utensils in the treatment area should be covered during treatment or thoroughly washed before re-use. Remove pets, birds, and cover aquariums before spraying. Do not permit humans or pets to contact treated surfaces until the spray has dried.

During any overhead applications to overhead interior areas of structures, cover surfaces below with plastic sheeting or similar materials (except where exempt).

Wear protective clothing, unvented goggles, gloves and respirator, when applying to overhead areas or in poorly ventilated areas. Avoid touching sprayed surfaces until spray has completely dried.

Do not use in food/feed areas of food/feed handling establishments, restaurants or other areas where food/feed is commercially prepared or processed. Do not use in serving areas while food is exposed or facility is in operation. Serving areas are areas where prepared foods are served such as dining rooms but excluding areas where food may be prepared or held.

In the home, cover all food handling surfaces and cover or remove all food and cooking utensils, or wash thoroughly after treatment. Non-food/feed areas of food/feed areas are areas such as garbage rooms, lavatories, floor drains (to sewers) entries and vestibules, offices, locker rooms, machine rooms, boiler rooms, garages, mop closets and storage (after bottling or canning).

Not for use in USDA Meat and Poultry Plants.

**Broadcast Treatment of Wood for the Control of Wood-infesting Insects and Nuisance Pests Outside of Structure**

Apply a 0.06% emulsion with a fan spray using a maximum pressure of 25 psi. Treatment should be made just to the point of run-off.

To control wood-infesting insects active inside trees, utility poles and/or fence posts, drill to find the interior infested cavity and inject a 0.06% emulsion. To control bees, wasps, hornets, and yellow-jackets, apply in late evening when insects are at rest. Aim spray at nest openings in ground, bushes and in cracks and crevices which may harbor nests, saturating nest openings and contacting as many insects as possible.

**Pests Under Slabs**

Infestations of Arthropods, such as ants, cockroaches and scorpions inhabiting under slab area may be controlled by drilling and injecting or horizontal rodding and then injecting 1 gallon of a 0.06% to 0.12% emulsion per 10 square feet or 2 gallons of emulsion per 10 linear feet.

**Attention**

Do not apply to pets, crops, or sources of electricity.

Firewood is not to be treated.

Use only in well ventilated areas.

During any application to overhead areas of structure, cover surface below with plastic sheeting or similar material (except where exempt).

Do not allow spray to contact food, foodstuffs, food contacting surfaces, food utensils or water supplies.

Thoroughly wash dishes and food handling utensils with soap and water if they become contaminated by application of this product.

Do not treat areas where food is exposed.

During indoor surface applications do not allow dripping or run-off to occur.

**Distributors Should Sell in Original Packages Only.**

**Terms of Sale or Use:** On purchase of this product buyer and user agree to the following conditions:

**Warranty:** FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

**Directions and Recommendations:** Follow directions carefully. Timing, method of application, weather conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by the buyer at his own risk.

**Use of Product:** FMC's recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

**Damages:** Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.

Biflex and **FMC**—Trademarks of FMC Corporation

(1350-1/6/95)

**REVISIONS:**

1. Single rate for termiticide uses.
2. New volume adjustment section.

**MATERIAL SAFETY DATA SHEET**

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EEC Directive, 91/155/EEC and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

**1. Company and Product Identification**

**FMC CORPORATION**  
Agricultural Chemical Group  
1735 Market Street  
Philadelphia, PA 19103 U.S.A.

**Code Number** : 1350  
**Active Ingredient** : Bifenthrin  
**Chemical Family** : Pyrethroid Pesticide  
**Formula** : C<sub>23</sub>H<sub>22</sub>ClF<sub>3</sub>O<sub>2</sub> (bifenthrin)  
**Synonyms** : FMC 54800; (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate; **IUPAC**: 2-methylbiphenyl-3-ylmethyl (Z)-(1R)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate

**EMERGENCY TELEPHONE NUMBERS:**

**CHEMTREC**  
(800)424-9300 (U.S.A. & Canada)  
(202)483-7616 (All Other Countries)

**FMC CORPORATION**  
(800)331-3148 (U.S.A. & Canada)  
(716)735-3765 (All Other Countries-*reverse charges*)

**General Information:** (800)321-1362

**2. Composition/Information on Ingredients**

<b>Ingredient Name</b>	<b>CAS #</b>	<b>EEC Number</b>	<b>PEL/TLV</b>	<b>EEC Class</b>
Bifenthrin (25.1%)	82657-04-3	None	None	None
Aromatic Hydrocarbons (<21.9%)	64742-95-6	650-001-00-0	100 ppm (supplier)	None
1,2,4-trimethylbenzene (<11.3%)	95-63-6	None	25 ppm	None
Surfactant Blend (<6.9%)	None	None	None	None
Xylene (<1.1%)	1330-20-7	601-022-00-9	100 ppm 150 ppm STEL	R11-20/21-38
Cumene (<0.7%)	98-82-8	601-024-00-X	50 ppm (skin)	R10-37
1-butanol (<0.6%)	71-36-3	603-004-00-6	50 ppm (skin) (ceiling)	R10-20
Ethylbenzene (<0.4%)	100-41-4	601-023-00-4	100 ppm 125 ppm STEL	R11-20

**3. Hazards Identification****Emergency Overview:**

- Amber liquid with an aromatic hydrocarbon odor.
- Moderately combustible. May support combustion if heated above the product's flash point (42.2°C/108°F).
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Highly toxic to fish and aquatic organisms. Keep out of drains and water courses.
- Moderate oral toxicity, and moderately irritating to the eyes.

**Potential Health Effects:** Effects from overexposure result from swallowing or coming into contact with the eyes.

Symptoms of overexposure include tremors, convulsions, increased hypersensitivity to sound, and loss of muscle control. Contact with bifenthrin may occasionally produce skin sensations such as numbing, burning or tingling. These skin sensations are reversible and usually subside within 12 hours.

**Medical Conditions Aggravated by Exposure:** None presently known.

# Product Name: BIFLEX™ TC TERMITICIDE

## 4. First Aid Measures

- Eyes** : Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.
- Skin** : Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.
- Inhalation** : Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.
- Ingestion** : Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

**Note to Medical Doctor** : Biflex TC has moderate oral, and low dermal toxicity, and is moderately irritating to the eyes and slightly irritating to the skin. This product contains light aromatic hydrocarbons that can produce a severe pneumonitis or fatal pulmonary edema if aspirated. Consideration should be given to gastric lavage with an endotracheal tube in place. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

## 5. Fire Fighting Measures

**Flash Point** : 42.2°C (108°F) (CC)

**Extinguishing Media** : Foam, CO<sub>2</sub> or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

**Degree of Fire/Explosion Hazard** : Moderately combustible. When heated above the flash point, this material releases vapors which, when mixed with air, can burn or be explosive.

**Special Fire Fighting Procedures** : Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapor generated.

**Hazardous Decomposition Products** : Carbon monoxide, carbon dioxide, hydrogen fluoride, and hydrogen chloride.

## 6. Accidental Release Measures

Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep material out of streams and sewers. Dike to confine spill and absorb with an absorbent such as clay, sand or soil.

Vacuum, shovel or pump waste into a drum and label contents.

To clean and neutralize spill area, tools and equipment, wash with a suitable solution (i.e., bleach or caustic/soda ash and ethylene glycol) and add the solution to the drummed waste already collected. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

## 7. Handling and Storage

Store in a cool, dry, well-ventilated place. Store in original containers only. Keep out of reach of children and animals. Do not store at temperatures below 4°C (40°F). If crystals are observed, warm material to above 15°C (60°F) by room heating only. Do not use external source of heat for warming container. Shake container periodically to redissolve crystals. Do not use or store near heat, open flame or hot surfaces. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

## 8. Exposure Controls/Personal Protection

Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated below provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

**Ventilation** : Use local exhaust at all process locations where vapor or mist may be emitted. Ventilate all transport vehicles prior to unloading.

**Work Clothing** : Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a rubber rain suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

**Eye Protection** : For splash, mist or spray exposure, wear chemical protective goggles or a face shield.

**Respiratory Prot.** : For splash, mist or spray exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EEC CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.



**12. Environmental Information (cont'd)****Environmental Toxicology :**

Bifenthrin is highly toxic to fish and aquatic arthropods, and LC50 values range from 0.0038 µg/L to 17.8 µg/L. In general, the aquatic arthropods are the most sensitive species. Care should be taken to avoid contamination of the aquatic environment. Bifenthrin had no effect on mollusks at its limit of water solubility. Bifenthrin is only slightly toxic to both waterfowl and upland game birds (LD50 values range from 1800 mg/kg to >2150 mg/kg).

**13. Disposal Considerations**

Open dumping or burning of this material or its packaging is prohibited. An acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location, and regulatory requirements may change, the appropriate regulatory agencies should be contacted prior to disposal.

Non-returnable containers which held this material should be cleaned, prior to disposal, by triple-rinsing. Containers which held this material may be cleaned by being triple-rinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

**14. Transportation Information**

**U.S. DOT** : Pesticides, liquid, toxic, flammable, n.o.s. (bifenthrin 25.1%, contains xylene), 6.1, UN2903, PG III. ERG Guide 28. Insecticides, NOI, Poison other than Class A Poison. NMFC Item 102100. Biflex™ TC.

**UN** : Pesticides, liquid, toxic, flammable, n.o.s. (bifenthrin 25.1%, contains xylene), Class 6.1, UN2903, III. ERG Guide 28. Insecticides, NOI. Biflex™ TC.

**MARPOL Designation** : Not listed

**15. Regulatory Information**

**Australian Hazard Code** : 3XE

**U.S. CERCLA Reportable Quantity (RQ)** : This product contains the following ingredients listed in 40 CFR Table 302.4:

	Percentage by weight	Final RQ (lb.)
xylene, mixed isomers	< 1.1	1,000
ethylbenzene	< 0.4	1,000
cumene	< 0.7	5,000
1-butanol	< 0.6	5,000

**U.S. EPA Signal Word** : WARNING

**U.S. SARA Title III**

Section 302 Extremely Hazardous Substances (40 CFR 355) : Not Listed

Section 302.4 Reportable Quantity (RQ) (40 CFR 355) : Not Listed

Section 311 Hazard Categories (40 CFR 370) : Immediate, Delayed, Fire

Section 312 Threshold Planning Quantity (40 CFR 370) : The threshold planning quantity (TPQ) for this product, if treated as a mixture, is 10,000 lb. This product contains the following ingredients with a TPQ of less than 10,000 lb.: None.

Section 313 (40 CFR 372) : This product contains the following ingredients subject to Section 313 reporting requirements: 1,2,4-trimethylbenzene (<11.3%); and, xylene, mixed isomers (<1.1%).



## Product Safety Information Sheet

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### Product

Biflex™ TC Termiticide 0.12% emulsion (0.06% to 0.12%) diluted in water. Certain label uses permit emulsion from 0.06% to 0.24%.

### Manufacturer

FMC Corporation, P.O. Box 8, Princeton, NJ 08543

### Emergency Phone #

1-800-331-3148

### Technical Information Phone #

1-800-321-1FMC

### Ingredients

Bifenthrin (Active Ingredient)	CAS #82657-04-3
Xylene Range Solvent	CAS #64742-95-6
Water	

### Fire and Explosion Hazard Information

The water-based emulsion of Biflex TC Termiticide is not explosive nor flammable.

### Health Hazard Information

Keep out of reach of children. May be fatal if swallowed. Harmful if inhaled or absorbed through skin. Causes moderate eye irritation. Biflex TC, as a concentrate, is labeled "Warning" for all EPA required acute toxicity testing.

	Acute Mammalian Toxicity	
	Concentrate	Emulsion
Acute Oral	275 mg/kg	> 5,000 mg/kg
Acute Dermal	> 2,000 mg/kg	> 2,000 mg/kg

Results of toxicity testing are expressed in terms of the weight of the termiticide (in milligrams) compared to the weight of the test animals (in kilograms). The term LD50 indicates the appropriate amount of termiticide per weight of the test animals which is lethal to half of the test animals. The larger the LD50 value, the less toxic is the termiticide.

### First Aid Procedures (for 0.12% emulsion)

#### Eye

Flush eyes with plenty of water. Obtain medical attention if irritation occurs or persists.

## **First Aid Procedures (for 0.12% emulsion) continued**

### **Skin**

"Wash skin with plenty of soap and water". If irritation occurs and persists, call a physician.

### **Inhalation**

Remove to fresh air. If breathing difficulty or discomfort occurs, obtain medical attention.

### **Ingestion**

Rinse mouth out with water. Dilute by giving 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Do not induce vomiting unless advised by a physician or qualified medical advisor. Do not administer milk, cream, fats, oils or alcohol which may increase absorption. Call a physician or Poison Control Center.

### **Note to Physician**

Biflex TC emulsion can contain a concentration from 0.06% to 0.24% of the pyrethroid bifenthrin, aromatic hydrocarbons and the remainder primarily water. Aromatic hydrocarbons can produce severe pneumonitis if aspirated during vomiting. Treatment is otherwise controlled by removal of exposure followed by symptomatic and supportive care.

## **Environmental and Disposal Information**

### **Spill Control and Cleanup**

Isolate and post spill area. Long-sleeved uniform or coveralls should be worn, and pesticide protective gloves such as nitrile butyl rubber should be worn. Keep out animals and unprotected persons. Keep emulsion out of streams and sewers. Dike to confine spills, and absorb with an absorbent such as clay, sand or cat litter. Place in a DOT approved drum and contact appropriate regulatory agencies prior to disposal. To decontaminate spill area, tools and equipment, wash with a detergent/water mixture and properly dispose of solution as contaminated waste.

### **Environmental Hazards**

This product is extremely toxic to bees exposed to direct treatment or residues. Do not allow it to drift to areas where bees are actively foraging. The product is extremely toxic to fish. Use with care when applying to areas adjacent to any body of water. Remove pets and cover aquariums before treatment.

### **Occupational Exposure Limits**

Neither OSHA, ACGIH nor other government agencies have established limits for the active ingredient in air or water.

### **Regulatory Status**

Biflex TC Termiticide is registered by authority of the U.S. Environmental Protection Agency and the Federal Insecticide, Fungicide and Rodenticide Act.

Code 1223

Net Contents



# FT Termiticide

Only For Sale To, Use And Storage By  
Professional Pest Control Operators

EPA REG. NO. 279-3062

EPA Est. 279-

**Active Ingredient:**

\*Permethrin\*\* ..... 36.8%

Inert Ingredients: ..... 63.2%

100.0%

\*(3-Phenoxyphenyl) methyl ( $\pm$ ) *cis-trans* 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate  
\*\* *cis/trans* ratio: Max. 55% ( $\pm$ ) *cis* and min. 45% ( $\pm$ ) *trans*

Contains 3.2 pounds permethrin per gallon.

U.S. Patent No. 4,024,163

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

See other panels for additional precautionary information.

### STATEMENT OF PRACTICAL TREATMENT

If swallowed: Call a physician or Poison Control Center. Do not induce vomiting because of aspiration hazard.

If inhaled: Remove to fresh air. If discomfort or breathing difficulty occurs, obtain medical attention.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

For Emergency Assistance Call 1-800-331-3148.

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans (and Domestic Animals)

**CAUTION**

Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes or clothing. Avoid breathing dust (vapor or spray mist). Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.



FMC Corporation  
Agricultural Chemical Group  
Philadelphia PA 19103

1/95-C

### Environmental Hazards

This product is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not apply this product or allow it to drift to crops or weeds on which bees are actively foraging. Additional information may be obtained from your Cooperative Extension Service.

This product is extremely toxic to fish and aquatic invertebrates. Use with care when applying to areas adjacent to any body of water. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters. Do not apply directly to water.

### Physical/Chemical Hazards

Do not use or store near heat or open flame.

### DIRECTIONS FOR USE

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

### Shake Well Before Using

#### STORAGE AND DISPOSAL

**Pesticide Storage**

Store at temperatures above 40°F (5°C).

If separation occurs, and less than entire contents of container are to be used, remix by agitation. For the 1.25 and 2.5 gallon containers, invert and shake several times until contents are homogeneous. For the 5-gallon U-Turn® container, grasp handle and rock container forward and backward vigorously until contents are homogeneous. For 10 gallon U-Turn container, remix with mechanical agitator by attaching a power drill with 1/4 inch chuck to agitator shaft and agitating by spinning shaft for 1 minute prior to dispensing.

If crystals form, warm to room temperature 70°F (21°C) by room heating only for 24-48 hours and shake occasionally until crystals dissolve and product appears uniform. Do not use external source of heat for warming container.

Do not use or store near heat, open flame or hot surfaces.

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: 1-(800)-331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter, commercial clay or gel absorbents. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

**Pesticide Disposal**

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Disposal**

Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Metal Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not cut or weld metal containers.

Returnable/Refillable Sealed Container: Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

## General Information on the Use of This Product

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or lawns and grounds.

Choice of appropriate procedures should include consideration of such variable factors as the design of the structure, location of heating, ventilation, and air conditioning (HVAC) systems, water table, soil type, soil compaction, grade conditions, and location and type of domestic water supplies and utilities.

For advice concerning current control practices with relation to the specific local conditions, consult resources in structural pest control and state cooperative extension and regulatory agencies.

## SUBTERRANEAN TERMITE CONTROL

The use of this product prevents and controls termite infestations in and around structures and constructions.

The dilute insecticidal emulsion must be adequately dispersed in the soil to establish a barrier between the wood and the termites in the soil. As a good practice: 1) all non-essential wood and cellulose containing materials should be removed from around foundation walls, crawl spaces and porches; 2) eliminate termite access to moisture by repairing faulty plumbing and/or construction grade. Soil around untreated structural wood in contact with soil should be treated as described below.

To establish an effective insecticidal barrier with this product the service technician must be familiar with current termite control practices such as: trenching, rodding, sub-slab injection, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray applications to infested or susceptible wood. These techniques must be correctly employed to prevent or control infestations by subterranean termites such as: *Copiotermes*, *Heterotermes*, *Reticulitermes* and *Zootermopsis*. The biology and behavior of the species involved should be considered by the service technician in determining which control practices to use to eliminate or prevent the termite infestation.

**Important:** Contamination of public and private water supplies must be avoided by following these precautions: Use anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies. Do not treat soil beneath structures that contain cisterns or wells. Do not treat soil that is water saturated or frozen. Consult state and local specifications for recommended distances of wells from treated areas, or if such regulations do not exist, refer to Federal Housing Administration Specifications (H.U.D.) for guidance.

**Note:** Crawlspace are to be considered inside of the structure.

**Critical Areas:** Critical areas include areas where the foundation is penetrated by utility services, cracks and expansion joints, bath traps and areas where cement constructions have been poured adjacent to the foundation such as stairs, patios, and slab additions.

**Application Rate:** Use a 0.5% emulsion for subterranean termites. For other pests on the label use specific listed rates.

**Mixing:** For the desired application rate, use the chart below to determine the amount of Dagnet FT for a given volume of finished emulsion:

Emulsion Concentration	Amount of Dagnet FT (Gallons except where noted)		
	0.5%	1.0%*	2.0%*
Desired Gallons of Finished Emulsion			
1	1 1/2 fl. oz.	3 1/2 fl. oz.	6 3/4 fl. oz.
5	8 1/2 fl. oz.	16 3/4 fl. oz.	33 3/4 fl. oz.
10	16 1/2 fl. oz.	33 1/2 fl. oz.	66 3/4 fl. oz.
19	0.25	0.5	1
38	0.5	1	2
58	.75	1.5	3
96	1.25	2.5	5
192	2.5	5	10

Common units of measure:

1 pint = 16 fluid ounces (oz.)

1 gallon = 4 quarts = 8 pints = 128 fluid ounces (oz.)

\*For termite applications, only use these rates in conjunction with the application volume adjustments as listed in the section below or in the foam or underground service application sections.

**Application Volume:** To provide the greatest protection against termite reinfestation for both pre and post construction applications, it is important to apply as close to labeled volume and rate of finished emulsion as is practical. To ensure thorough and complete coverage in different soil types, it may become necessary to adjust the volume being applied, provided there is a corresponding rate adjustment so that the amount of active ingredient applied to the soil remains the same. In situations such as clay-rich soils which will not accept large amounts of water, reduced

volumes of emulsion can be used which will deliver the appropriate concentration of termiticide to the soil. This may also apply to sensitive areas and/or applications where less volume may be desirable.

Where desirable for pre and post construction treatments, the volume of the 1.0% emulsion may be reduced by 1/2 the labeled volume or a 2.0% emulsion may be applied at 1/4 the labeled volume (see Volume Adjustment Chart). Volume adjustments at 2.0% are not recommended for subslab injection. See Volume Adjustment Chart below.

**Note:** When volume is reduced, the hole spacing for subslab injection and soil rodding may require similar adjustment to account for lower volume dispersal of the termiticide in the soil.

Volume Adjustment Chart			
Rate (% emulsion)	0.5%	1.0%	2.0%
Volume allowed			
Horizontal (gallons emulsion/10 ft <sup>2</sup> )	1.0 gallons	0.5 gallons	0.25 gallons*
Vertical (gallons emulsion/10 lin. ft.)	4.0 gallons	2.0 gallons	1.0 gallons*

\*Not recommended for subslab injection.

**After Treatment:** Securely plug all holes drilled in construction elements of living areas of home after application.

## Pre-Construction Subterranean Termite Treatment

Effective pre-construction subterranean termite control is achieved by the establishment of vertical and/or horizontal insecticidal barriers using 0.5% emulsion of Dagnet FT. To meet termite proofing requirements, follow the procedures in the latest edition of the Housing and Urban Development Minimum Property Standards (refer to U.S.D.A. Home and Garden Bulletin No. 64).

**Horizontal Barriers:** Create a horizontal barrier wherever treated soil will be covered, such as footing trenches, slab floors, carports, and the soil beneath stairs and crawlspaces.

To produce a horizontal insecticidal barrier, apply the emulsion at the rate of 1 gallon per 10 square feet to fill soil. If fill is washed gravel or other coarse material, apply at 1.5 gallons of emulsion per 10 square feet so that the emulsion will reach the soil beneath the fill. Applications shall be made by a low pressure spray (less than 50 p.s.i.) using a coarse spray nozzle. If slab will not be poured the same day as treatment, cover treated soil with a water-proof barrier such as polyethylene sheeting. This is not necessary if foundation walls have been installed around the treated soil.

**Vertical Barriers:** Vertical barriers should be established in areas such as around the base of foundations, plumbing, utility entrances, back-filled soil against foundation walls and other critical areas.

To produce a vertical barrier in soil, apply the emulsion at a rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Distribute the treatment as evenly as possible.

- When rodding or trenching, it is important that emulsion reaches the top of the footing. Rod holes should be spaced to provide a continuous insecticidal barrier.
- Care should be taken to avoid soil wash-out around the footing.
- Trenches need not be wider than 6 inches. Emulsion should be mixed with the soil as it is being replaced in the trench.
- For a monolithic slab, an inside vertical barrier may not be required.

Hollow block voids may be treated at a rate of 2 gallons of emulsion per 10 linear feet so that the emulsion will reach the top of the footing.

## Post-Construction Subterranean Termite Treatment

Use a 0.5% emulsion for post-construction treatment. Post-construction soil applications shall be made by injection, rodding, and/or trenching or coarse fan spray with pressures not exceeding 25 p.s.i. at the nozzle. Care should be taken to avoid soil wash-out around the footing.

Do not apply emulsion until location of wells, radiant heat pipes, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these elements.

**Slabs:** Vertical barriers may be established by sub-slab injection within the structure and rodding and/or trenching outside at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Special care must be taken to distribute the treatment evenly. Treatment should not extend below the bottom of the footing.

Treat along the outside of the foundation and where necessary beneath the slab on the inside of foundation walls. Treatment may also be required beneath the slab along both sides of interior footing-supported walls, one side of interior partitions and along all cracks and expansion joints. Horizontal barriers may be established where necessary by long-rodding or by grid pattern injection vertically through the slab.

- Drill holes in the slab and/or foundation to allow for the application of a continuous insecticidal barrier.

- b. For shallow foundations (1 foot or less) dig a narrow trench approximately 6 inches wide along the outside of the foundation walls. Do not dig below the bottom of the footing. The emulsion should be applied to the trench and soil at 4 gallons of emulsion per 10 linear feet per foot of depth as the soil is replaced in the trench.
- c. For foundations deeper than 1 foot follow rate for basement.
- d. Exposed soil and wood in bath traps may be treated with a 0.5% emulsion.

**Basements:** Where the footing is greater than 1 foot in depth from grade to the bottom of the foundation, application can be made by trenching and/or rodding at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Sub-slab injection may be necessary along the inside of foundation walls, along cracks and partition walls, around pipes, conduits, piers, and along both sides of interior footing-supported walls.

**Crawl Spaces:** In crawl spaces vertical barriers may be applied at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth from grade to top of footing. Application may be made by rodding and/or trenching. If adequate ventilation is not available in the crawl space, see point "c" below. Treat both sides of the foundation and around all utility services.

- a. Rod holes should be spaced to provide a continuous insecticidal barrier. Treatment should not extend below the footing.
- b. Trenches need not be wider than 6 inches and not below the footing. The emulsion should be mixed with the soil as it is replaced in the trench.
- c. It is recommended that inadequately ventilated crawl spaces be brought into compliance with FHA Minimum Property Standards specifying 1 square foot of ventilator opening per 150 square feet of crawl space area.
- d. To prevent subterranean termites from constructing mudtubes between soil and crawl space wood members above, an overall soil treatment of this product may be applied. Remove all cellulose debris before application. Apply 1 gallon of emulsion per 10 square feet.
- e. For inaccessible crawl spaces, drill through the foundation wall or through the floor above and treat the soil perimeter at a rate of 4 gallons of emulsion per 10 linear feet per foot of soil depth. Apply to the soil surface of the crawl space with a coarse spray with pressures not exceeding 25 p.s.i. at the nozzle. Apply at the rate of 1 gallon of emulsion per 10 square feet.

When treating plenums or crawl spaces, turn off the air circulation system of the structure until application-generated dust or spray mist has settled. Wear respiratory protection when treating crawl spaces.

**Note:** If treatment method "d" or "e" is used, children and pets should be kept out of treated area in crawl space until surface is dry.

**Masonry Voids:** Treatment may be made through masonry voids such as concrete blocks and veneer to establish a continuous insecticidal barrier at the top of the footing. Apply at the rate of 2 gallons of emulsion per 10 linear feet. Where this treatment is necessary, access holes in the blocks must be drilled below the sill plate and as close as possible to the footing as is practical.

**Note:** When treating behind veneer care should be taken not to drill beyond the veneer. If concrete blocks are behind the veneer, both the blocks and the veneer may be drilled and treated at the same time.

**Excavation Technique:** If treatment must be made in difficult situations, such as near wells, cisterns, along fieldstone or rubble walls, along faulty foundation walls, and around pipes and utility lines which lead downward from the structure to a well or pond, application may be made in the following manner:

- a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material.
- b. Treat the soil at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth of the trench. Mix the emulsion thoroughly into the soil taking care to prevent liquid from running off the liner.
- c. After the treated soil has absorbed the liquid emulsion, replace the soil in the trench.

Prior to using this technique near wells or cisterns, consult state, local or federal agencies for information regarding approved treatment practices in your area.

## Foam Applications

Dagnet FT termiticide emulsion, from 0.5 to 2.0%, may be converted to a foam with expansion characteristics from 2 to 40 times.

### Localized Application

Foam may be used to treat voids to control or prevent localized infestations of: termites, ants, bees, wasps or other arthropods harboring in voids. Application may be made to voids such as: behind veneers, piers (concrete or wood), chimneys, into rubble and stone foundations, into block voids, structural voids, (i.e. between stud walls), poles, stumps, and wood in crawlspaces using either the foam alone or in combination

with liquid emulsion.

Note location of electrical sources prior to foaming voids to avoid possible shock hazard.

### Application Under Slabs or to Soil in Crawlspaces to Prevent or Control Termites

Application may be made using Dagnet FT foam alone or in combination with liquid emulsion. The equivalent of at least 4 gallons (6.4 ounces of Dagnet concentrate) of 0.5% emulsion per 10 linear feet (vertical barrier), or at least 1 gallon (1.6 ounces of Dagnet concentrate) of 0.5% emulsion per 10 square feet (horizontal barrier) must be applied either as emulsion, foam, or a combination of both. For a foam only application, apply Dagnet FT concentrate in sufficient foam concentration and foam volume to deposit 6.4 ounces of concentrate per 10 linear feet or 1.6 ounces of concentrate per 10 square feet. For example, 1 gallon of 2% emulsion generated as foam to cover 10 linear feet is equal to the application of 4 gallons of 0.5% emulsion per 10 linear feet.

## SAND BARRIER INSTALLATION AND TREATMENT

Termites can build mud tubes over treated surfaces as long as they have access to untreated soil and do not have to move Dagnet FT treated soil. Fill in cracks and spaces with builder's or playbox sand and treat the sand with Dagnet FT. The sand should be treated as soil following the termiticide rate listed on the Dagnet FT label.

**Retreatment Restrictions:** Retreatment for subterranean termites should be made when there is evidence of reinfestation subsequent to the initial treatment, or there has been a disruption of the chemical barrier in the soil due to construction, excavations, landscaping, etc. Retreatments should be made as a spot treatment to these areas.

Retreatments may be made to vulnerable areas in accordance with the application techniques described above. This application should be made as a spot treatment to these areas. Routine or annual retreatment of the entire premises should be avoided.

## SPECIFIC PEST CONTROL APPLICATIONS

### Underground services

Such as: wires, cables, utility lines, pipes, conduits, etc. Services may be within structures or located outside structures, in right-of-ways or to protect long range (miles) of, installations of services.

Soil treatment may be made using 0.5% to 1.0% Dagnet FT emulsion to prevent attack by termites and ants.

Apply 2 to 4 gallons of emulsion per 10 linear feet to the bottom of the trench and allow to soak into the soil. Lay services on the treated soil and cover with approximately 2 inches of fill soil. Apply another 2 to 4 gallons per 10 linear feet over the soil surface to complete the treatment barrier. In wide trenches, only treat the soil in the area near the services. It is important to establish a continuous barrier of treated soil surrounding the services.

Where soil will not accept the above labeled volume, 1 to 2 gallons of 1.0% Dagnet FT may be used per 10 linear feet of trench both to the bottom of the trench and over the soil on top of the services.

Finish filling the trench with untreated fill soil. The soil where each service protrudes from the ground may be treated by trenching/rodding no more than 1 to 2 gallons of emulsion into the soil.

### Precautions:

Do not treat electrically active underground services.

### Posts, Poles, and Other Constructions

Create an insecticidal barrier in the soil around wooden constructions such as signs, fences and landscape ornamentation by applying a 0.5% to emulsion.

Previously installed poles and posts may be treated by sub-surface injection or treated by gravity flow through holes made from the bottom of a trench around the pole or post. Treat on all sides to create a continuous insecticidal barrier around the pole. Use 1 gallon of emulsion per foot of depth for poles and posts less than six inches in diameter. For larger poles, use 1.5 gallons of emulsion per foot of depth. Apply to depth of 6 inches below the bottom of the wood. For larger construction use 4 gallons per 10 linear feet per foot of depth.

### Treatment of Wood-in-Place for Control of Wood-Infesting Insects

#### (Localized Areas in Structure)

For the control of insects such as termites, ants, carpenter ants, a wood-infesting beetles such as Old House Borer and Powder Post in localized areas of infested wood in and around structures, apply a 0.5% emulsion to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is vulnerable. Paint on or fan spray application

may also be used. Plastic sheeting must be placed immediately below overhead areas that are spot treated except for soil surfaces in crawlspaces. Application may be made to inaccessible areas by drilling, and then injecting emulsion with a crack and crevice injector into the damaged wood or void spaces. This type of application is not intended to be a substitute for soil treatment, mechanical alteration or fumigation to control extensive infestation of wood-infesting insects.

**Control of Bees and Wasps Indoors:** To control bees, wasps, hornets, and yellow jackets apply a 0.5% emulsion. Application should be made in the late evening when insects are at rest. Spray liberally into hiding and breeding places, especially under attic rafters, contacting as many insects as possible. Repeat as necessary.

Termite carton nests in trees or building voids may be injected with 0.5% to 1.0% emulsion. Multiple injection points to varying depths may be necessary. It is desirable to physically remove carton nest material from building voids when such nests are found.

**Important:** Do not apply emulsion until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these structural elements. Do not apply into electrical fixtures, switches, or sockets.

## GENERAL INFORMATION

Dragnet FT is to be used for residual pest control in and on buildings and structures and their immediate surroundings and on modes of transport. Permitted areas of use include, but are not limited to industrial buildings, houses, apartment buildings, laboratories, buses, greenhouses and the non-food/feed areas of stores, warehouses, vessels, railcars, trucks, trailers, aircraft, schools, nursing homes, hospitals (non-patient areas), restaurants, hotels, and food manufacturing, processing and servicing establishments.

Do not tank mix this product with dichlorvos (DDVP) containing products. Can be tank-mixed with Insect Growth Regulators (IGR's) or pyrethrin-containing products. When mixing Dragnet FT with other products, observe all precautions and limitations on the labels of each product. To prepare the emulsion, dilute Dragnet FT with water only. To prepare a 0.50% emulsion, mix 1.6 oz. (50 ml) in 1 gallon of water.

Dragnet FT is an emulsifiable concentrate to be diluted with water and used to control pests in and around homes and other structures. The pests controlled are listed in the accompanying tables.

Dragnet FT may be used as a broadcast or spot application to carpeting, wood, home or residential lawns only and soil (crawl space and perimeter) and as a crack and crevice injection, or paint-on treatment. Crawlspace are considered inside the structure. Consult tables for specific use instructions.

### Broadcast Treatment of Wood for the Control of Wood-Infesting Insects and Nuisance Pests Outside of Structure

Apply a 0.5% emulsion with a fan spray using a maximum of 25 psi. Treatment should be made just to the point of runoff.

To control wood-infesting insects active inside trees, utility poles and/or fence posts, drill to find the interior infested cavity and inject a 0.5% emulsion. To control bees, wasps, hornets, and yellow-jackets, apply in late evening when insects are at rest. Aim spray at nest openings in ground, bushes and in cracks and crevices which may harbor nests, saturating nest openings and contacting as many insects as possible.

### Pests Under Slabs

Infestations of Arthropods, such as ants, cockroaches and scorpions inhabiting under slab area may be controlled by drilling and injecting or horizontal rodding and then injecting 1 gallon of a 0.5% to 1.0% emulsion per 10 square feet or 2 gallons per 10 linear feet.

### Pest Control in Crawlspace

Broadcast Dragnet FT at 0.5% to all surfaces in crawlspace to control ants, fleas, roaches, scorpions, or other arthropods. Product may also be applied through under structure insecticidal delivery systems such as piping or flexible tubing mounted under the structure. This treatment is not intended as a substitute for termite control. Treat surfaces to point of run-off. Keep children and pets off surface until dry.

## Pest Control on Outside Surfaces and Around Buildings

Apply Dragnet® FT using a 0.5% emulsion as a residual spray to outside surfaces of buildings including, but not limited to, exterior siding, four dumps, residential lawns only such as grass areas adjacent or around private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, garages, fence lines, storage sheds, barns, and other residential and non-commercial structures, soil, trunks of woody ornamentals and other areas where pests congregate or have been seen. Repeat treatment as necessary to maintain effectiveness.

**Perimeter Treatment:** Apply to a band of soil and vegetation 6 to 10 feet wide around and adjacent to the structure. Also, treat the foundation of the structure to a height of 2 to 3 feet. Use a spray volume of 2 to 10 gallons of emulsion per 1000 square feet. Higher volumes of water may be needed if mulch or leaf litter is present or foliage is dense. House siding may be treated if pests such as Gypsy moth adults and caterpillars, boxelder bugs, elm leaf beetles, earwigs or silverfish are present.

Pest	Specific Instructions																						
Ants	Apply as a pinstream, as a fine/coarse, low pressure spray (20 psi or less), as a spot treatment or with a paintbrush. Treat where pests are found or entry points of the structure such as window and door frames and along the foundation.																						
Ant Mounds <sup>1</sup>																							
Armyworm																							
Fire Ants																							
Bees																							
Carpenter Bees																							
Bark Beetles <sup>3</sup>																							
Borers <sup>2</sup>																							
Boxelder Bugs <sup>2</sup>																							
Centipedes																							
Cockroaches	<ol style="list-style-type: none"> <li><b>1 Drench Method:</b> Apply 1-2 gallons of emulsion to each mound area by sprinkling the mound until it is wet and treat a 4 foot diameter circle around the mound. Use the higher volume for mounds larger than 12". For best results, apply in cool weather, such as in early morning or late evening hours, but not in the heat of the day.</li> <li><b>2 Boxelder Bugs, Elm Leaf Beetles, Gypsy Moth Caterpillars:</b> Spray tree trunks, building siding or wherever pests congregate, to the point of runoff.</li> <li><b>3 Borers and Bark Beetles:</b> To prevent infestation of trees and woody ornaments, spray the bark to the point of runoff.</li> <li><b>4 Fleas:</b> Mix 1.6-3.2 oz. of Dragnet FT in 16 to 100 gallons of water and apply to 4000 square feet of lawn. Use the lower rate to knock down existing fleas and the higher rate where faster knockdown or greater residual is desired. For example:</li> </ol>																						
Asian Cockroaches																							
Crickets																							
Mole Crickets																							
Earwigs																							
Elm Leaf Beetles <sup>2</sup>																							
Firebrats																							
Fleas <sup>4</sup>																							
Ground Beetles																							
Gypsy Moths (adults & Caterpillars) <sup>2</sup>																							
Millipedes	<table border="1"> <thead> <tr> <th>Lawn</th> <th>Sq Ft</th> <th>Oz of Dragnet® FT</th> <th>Gals of Water</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Small</td> <td>2,000</td> <td>0.8 to 1.6</td> <td>8 to 50</td> </tr> <tr> <td>4,000</td> <td>1.6 to 3.2</td> <td>16 to 100</td> </tr> <tr> <td rowspan="2">Medium</td> <td>6,000</td> <td>2.4 to 4.8</td> <td>24 to 150</td> </tr> <tr> <td>12,000</td> <td>4.8 to 9.6</td> <td>48 to 300</td> </tr> <tr> <td>Large</td> <td>44,000</td> <td>17.0 to 34.0</td> <td>176 to 1,100</td> </tr> </tbody> </table>	Lawn	Sq Ft	Oz of Dragnet® FT	Gals of Water	Small	2,000	0.8 to 1.6	8 to 50	4,000	1.6 to 3.2	16 to 100	Medium	6,000	2.4 to 4.8	24 to 150	12,000	4.8 to 9.6	48 to 300	Large	44,000	17.0 to 34.0	176 to 1,100
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Scorpions																							
Silverfish																							
Sowbugs																							
Spiders																							
Wasps																							
Ticks <sup>2</sup>																							
Flies																							
Carpenter Ants	Lawn should not be longer than 3 inches at the time of application. Repeat application if necessary. Application in combination with compatible surfactants may enhance penetration. Arid climates generally require the higher volumes.																						
Chinchugs <sup>4</sup>																							
Pill Bugs																							
Sod Webworm																							

**Ornamental Use (Not for use on plants being grown for sale or other commercial, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or lawns and grounds).**

## General Application Instructions

Dragnet® is a 3.2 pounds per gallon formulation of the insecticide permethrin. Apply Dragnet® when insects appear or feeding is noticed. The higher rate should be used as pest populations increase. Repeat the application as necessary to maintain control. Dragnet® may be applied by ground equipment only. Use sufficient water to obtain full coverage.

Do not apply more than 2.0 lb. a.i./A/year.

Dragnet® has demonstrated excellent plant safety; however, not all cultivars have been tested. Before treating large numbers of plants of a particular cultivar, treat a few plants and observe prior to full scale application.

### Spray Drift Precautions:

All ground application equipment must be properly maintained and calibrated using appropriate carriers.

Do not make ground applications during temperature inversions.

Make ground applications when the wind velocity favors on target product disposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 15 mph.

Do not apply by ground equipment within 25 feet of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries, and commercial fish farm ponds.

## Recommended Application Rates

CROP	PEST	RECOMMENDED RATE	SPECIFIC INSTRUCTIONS
Ornamentals (including interiorscapes, foliage and flowering plants, woody and herbaceous non-edible ornamentals and non-bearing plants of fruiting species)	Ants	4 to 8 Fl. Oz. per 100 Gals.	Apply sufficient volume of water to adequately cover foliage.
	Aphids Bagworm Beet Armyworm Cabbage Looper Citrus Thrips Fungus Gnat Heliiothis spp Japanese Beetles Lace Bug Leaf Feeding Caterpillars Leafminers Leafhoppers Leafrollers Lygus Bugs Mealybugs Root Weevils (Adult) Whitflies	— or — Broadcast 4 to 8 Fl. Oz. per Acre	Use higher rate for moderate to high infestations.  Direct application to blooms may cause browning of petals.  Marginal leaf burn may occur on Salvia, Dieffenbachia and Pteris Fern.
Conifers	Nantucket Pine Tip Moth Coneworms*	4 to 8 Fl. Oz. per 100 Gals. — or — Broadcast 4 to 8 Fl. Oz. per Acre	Begin application when adults appear. Repeat applications may be made on 5-7 day intervals as needed.

\*To control Coneworm —Use Dragnet® at the following rates:  
For high volume sprayers: Use 8 ounces in 100 gallons of water. Apply 5 to 10 gallons of finished spray per tree.  
For low volume sprayers: Use 42 ounces in 100 gallons of water. Apply 100 gallons per acre.  
To control Webbing Coneworm—make first application within 1 week of female flower closure or peak pollen flight.  
To control other coneworms —make first application within 30 days following flower closure.

## Applications to Agricultural Structures For Agricultural use only

### General Application Instructions

Dragnet® can be used for residual pest control in and on buildings and structures used for agricultural purpose, their immediate surroundings.

Dragnet® is an emulsifiable concentrate to be diluted with water and applied as an emulsion to control pests in and around agricultural structures. Pests controlled are listed in the accompanying tables. Dragnet® may be applied directly as a spray or spot treatment to walls and ceiling as a residual surface treatment. Do not treat manure or litter. Avoid contamination of feed and water. Do not apply directly to livestock or poultry.

### Agricultural Structures

Spray directly to walls and ceiling as residual surface treatment only. Do not treat manure or litter. Avoid contamination of feed and water. Do not apply directly to livestock or poultry.

For Application in	Target Insects	Method of Applic.	Dilute	Applic. Rate
Dairies, Barns, feedlots, stables, poultry houses, swine and livestock houses	House flies, stable flies and other manure breeding flies. Also aids in the reduction of cockroaches, mosquitoes and spiders.	Sprayer	4 ounces to 12.5 gallons water	1 gallon per 750 square feet of surface

## Attention

Do not apply to pets, crops, or sources of electricity.

Do not allow people or pets on treated surfaces, such as carpets until the spray has dried.

Do not use concentrate or emulsion in fogging equipment.

Firewood is not to be treated.

Use only in well ventilated areas.

During any application to overhead areas of structure, cover surfaces below with plastic sheeting or similar material (except where exempt).

Do not allow spray to contact food, foodstuffs, food contacting surfaces, food utensils or water supplies.

Thoroughly wash dishes and food handling utensils with soap and water if they become contaminated by application of this product.

Do not treat areas where food is exposed.

During indoor surface applications do not allow dripping or run-off to occur.

Do not apply this product in patient rooms or in any rooms while occupied by the elderly or infirm.

Do not apply when occupants are present in the immediate area in institutions such as libraries, sport facilities, etc.

Do not apply to classrooms when in use.

Do not touch treated surface until dry.

When applying Dragnet FT in a confined area, the user should wear unvented goggles and a respirator approved by the Mine Safety and Health Administration during application.

### Dealers Should Sell in Original Packages Only.

**Terms of Sale or Use:** On purchase of this product buyer and user agree to the following conditions:

**Warranty:** FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

**Use of Product:** FMC's recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

**Damages:** Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.

Dragnet and **FMC** —FMC trademarks

(1223-1/6/95-A)

### REVISIONS:

1. Single rate for termiticide uses
2. Added Ornamental uses - non-WPS
3. Added Agricultural Premise uses

**MATERIAL SAFETY DATA SHEET**

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EEC Directive, 91/155/EEC and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

**1. Company and Product Identification**

FMC CORPORATION  
 Agricultural Chemical Group  
 1735 Market Street  
 Philadelphia, PA 19103 U.S.A.

**Code Number** : 1223  
**Active Ingredient** : Permethrin  
**Chemical Family** : Pyrethroid Pesticide  
**Formula** : C<sub>21</sub>H<sub>20</sub>Cl<sub>2</sub>O<sub>3</sub> (permethrin)  
**Synonyms** : FMC 33297; (3-phenoxyphenyl)methyl (±)  
*cis-trans* 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane  
 carboxylate; IUPAC: 3-phenoxybenzyl (1*RS*)-*cis-trans*-3-(2,2-  
 dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate

**EMERGENCY TELEPHONE NUMBERS:**

CHEMTREC  
 (800)424-9300 (U.S.A. & Canada)  
 (202)483-7616 (All Other Countries)

FMC CORPORATION  
 (800)331-3148 (U.S.A. & Canada)  
 (716)735-3765 (All Other Countries-*reverse charges*)

General Information: (800)321-1362

**2. Composition/Information on Ingredients**

<u>Ingredient Name</u>	<u>CAS#</u>	<u>EEC Number</u>	<u>PEL/TLV</u>	<u>EEC Class</u>
Permethrin (36.8%)	52645-53-1	613-058-00-2	None	R22
Stoddard Solvent (<25.2%)	8052-41-3	None	100 ppm	None
Surfactant Blend (<8.5%)	None	None	None	None
1,2,4-trimethylbenzene (<1.1%)	95-63-6	None	25 ppm	None

**3. Hazards Identification**

**Emergency Overview:**

- Amber liquid with a faint, mild petroleum odor.
- Moderately combustible. May support combustion if heated above the product's flash point (42.2°C/108°F).
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Highly toxic to fish and aquatic organisms. Keep out of drains and water courses.

**Potential Health Effects:** Effects from overexposure result from ingestion or coming into contact with the skin or eyes. Symptoms of overexposure include increased hypersensitivity to touch and sound, tremors and convulsions. Contact with permethrin may produce skin sensations such as numbing, burning or tingling. These skin sensations are reversible and usually subside within 12 hours.

**Medical Conditions Aggravated by Exposure:** None presently known.

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#### 4. First Aid Measures

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- Eyes** : Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.  
**Skin** : Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.  
**Inhalation** : Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.  
**Ingestion** : Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

**Note to Medical Doctor** : Dragnet FT has low oral, dermal and inhalation toxicity. It is minimally irritating to the eyes and slightly irritating to the skin. The low oral toxicity of the product compared to the risk of pneumonitis from aspiration of stoddard solvents suggests vomiting should not be induced. Consideration should be given to gastric lavage with an endotracheal tube in place. Activated charcoal and a cathartic are recommended and nervous stimulation should be controlled with a sedative, e.g. barbiturates. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

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#### 5. Fire Fighting Measures

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**Flash Point** : 42.2°C (108°F)

**Extinguishing Media** : Foam, CO<sub>2</sub> or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

**Degree of Fire/Explosion Hazard** : Moderately combustible. When heated above the flash point, this material releases vapors which, when mixed with air, can burn or be explosive.

**Special Fire Fighting Procedures** : Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapor generated.

**Hazardous Decomposition Products** : Chlorine, hydrogen chloride, carbon dioxide, carbon monoxide, and aldehydes.

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#### 6. Accidental Release Measures

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Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep material out of streams and sewers. Dike to confine spill and absorb with an absorbent such as clay, sand or soil. Vacuum, shovel or pump waste into a drum and label contents.

To clean and neutralize spill area, tools and equipment, wash with a suitable solution (i.e., bleach or caustic/soda ash and ethylene glycol) and add the solution to the drums of waste already collected. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

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#### 7. Handling and Storage

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Store in a cool, dry, well-ventilated place. Do not use or store near heat, open flame or hot surfaces. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

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#### 8. Exposure Controls/Personal Protection

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Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated below provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

**Ventilation** : Use local exhaust at all process locations where vapor or mist may be emitted. Ventilate all transport vehicles prior to unloading.

**Work Clothing** : Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a rubber rain suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

**Eye Protection** : For splash, spray or mist exposure, wear chemical protective goggles or a face shield.

**Respiratory Prot.** : For splash, spray or mist exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EEC CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

**Gloves** : Wear chemical protective gloves made of materials such as nitrile, neoprene or Viton® brand. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

**Personal Hygiene** : Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking or using tobacco. Shower at the end of the workday.

## 9. Physical/Chemical Properties

<b>Appearance</b> : Amber liquid	<b>Solubility (H<sub>2</sub>O)</b> : Emulsifies
<b>Odor</b> : Faint, mild petroleum	<b>Molecular Weight</b> : 391.3 (permethrin)
<b>Specific Gravity</b> : 1.039 @ 20°C (water = 1)	<b>Flash Point</b> : 42.2°C (108°F)
<b>pH</b> : 7.5 @ 20°C (5% in water)	<b>Weight per Volume</b> : 8.66 lb/gal (1039 g/L)

## 10. Stability and Reactivity

**Stability** : Stable

**Hazardous Polymerization** : Will not occur

**Conditions/Materials to Avoid (Incompatibility)** : Excessive heat and fire.

## 11. Toxicological Information

**Rat Acute Oral** : LD50 = 998 mg/kg

**Rat Acute Inhalation** : LC50 > 4.30 mg/L/4hr

**Rabbit Acute Dermal** : LD50 > 2000 mg/kg

**Acute Effects From Overexposure** : Dragnet FT has low oral, dermal and inhalation toxicity. It is minimally irritating to the eyes and slightly irritating to the skin. Experience to date indicates that contact with permethrin has rarely produced skin sensations such as numbing, burning or tingling. These skin sensations are reversible and usually subside within 12 hours. Large toxic doses of Dragnet FT administered to laboratory animals have produced central nervous system effects with symptoms that include hypersensitivity to touch and sound, tremors, and clonic convulsions. Overexposure to animals via inhalation has also produced symptoms such as squinting eyes, irregular and rattling breathing and ataxia. Inhalation of stoddard solvent vapors may cause dizziness, disturbances in vision, drowsiness, respiratory irritation, and eye, skin and mucous membrane irritation. Vomiting after ingestion of this product may cause aspiration of stoddard solvents into the lungs which may result in fatal pulmonary edema.

**Chronic Effects From Overexposure** : No data available for Dragnet FT. In studies with laboratory animals, permethrin did not cause reproductive toxicity or teratogenicity. Analysis of chronic feeding studies in both mice and rats with permethrin resulted in the conclusion that permethrin's potential for induction of oncogenicity in experimental animals is low and that the likelihood of oncogenic effects in humans is nonexistent or extremely low. Long term feeding studies in animals resulted in increased liver and kidney weights, induction of the liver microsomal drug metabolizing enzyme system, and histopathological changes in the lungs and liver. An overall absence of genotoxicity has been demonstrated in mutagenicity testing with permethrin. Chronic exposure to stoddard solvents may cause headaches, dizziness, loss of sensations or feelings, and liver and kidney damage.

**Carcinogenicity**: IARC: No      NTP: No      Other (OSHA): No

## 12. Environmental Information

Unless indicated, the information presented below is for the active ingredient, permethrin.

### Physical/Environmental Properties :

In soil, permethrin is stable over a wide range of pH values. When applied at agricultural use rates, permethrin has a moderate rate of degradation in soil. At termiticidal use rates, permethrin degrades at a slower rate which is governed by soil characteristics. Due to its high affinity for organic matter ( $K_{oc} = 86,000$ ), there is little potential for movement in soil or entry into ground water. Permethrin has a Log  $P_{ow}$  of 6.1, but a low potential to bioconcentrate ( $BCF = 500$ ) due to the ease with which it is metabolized.

### Environmental Toxicology :

Permethrin is highly toxic to fish ( $LC50 = 0.5 \mu\text{g/L}$  to  $315 \mu\text{g/L}$ ) and aquatic arthropods ( $LC50 = 0.02 \mu\text{g/L}$  to  $7.6 \mu\text{g/L}$ ). Marine species are often more sensitive than the freshwater species. Bacteria, algae, mollusks and amphibians are much more tolerant of permethrin than the fish and arthropods. Care should be taken to avoid contamination of the aquatic environment. Permethrin is slightly toxic to birds and oral LD50 values are greater than 3600 mg/kg. Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effect on bird reproduction.

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### 13. Disposal Considerations

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Open dumping or burning of this pesticide or its packaging is prohibited. An acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location, and regulatory requirements may change, the appropriate regulatory agencies should be contacted prior to disposal.

Non-returnable containers which held this material should be cleaned, prior to disposal, by triple-rinsing. Containers which held this material may be cleaned by being triple-rinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

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### 14. Transportation Information

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U.S. DOT : Insecticides, NOI, other than Poison. NMFC Item 102120. Dragnet® FT.

UN : Flammable liquids, n.o.s. (contains stoddard solvent), Class 3, UN1993, III. ERG Guide 27. Insecticides, NOI. Dragnet® FT.

MARPOL Designation : Not listed

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### 15. Regulatory Information

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Australian Hazard Code : 3XE

U.S. CERCLA Reportable Quantity (RQ) (40 CFR Table 302.4) : Not listed

U.S. EPA Signal Word : CAUTION

U.S. SARA Title III

Section 302 Extremely Hazardous Substances	(40 CFR 355)	: Not listed
Section 302.4 Reportable Quantity (RQ)	(40 CFR 355)	: Not listed
Section 311 Hazard Categories	(40 CFR 370)	: Immediate, Delayed, Fire
Section 312 Threshold Planning Quantity	(40 CFR 370)	: The threshold planning quantity (TPQ) for this product, if treated as a mixture, is 10,000 lb. This product contains the following ingredients with a TPQ of less than 10,000 lb.: None.
Section 313 (40 CFR 372)		: This product contains the following ingredients subject to Section 313 reporting requirements: 1,2,4-trimethylbenzene (<1.1%).



## Product Safety Information Sheet

### Product

Dragnet<sup>®</sup> FT Termiticide up to a 1% emulsion diluted in water

### Manufacturer

FMC Corporation, P.O. Box 8, Princeton, NJ 08543

**Emergency Phone #**  
1-800-331-3148

**Technical Information Phone #**  
1-800-321-1FMC

Ingredients	CAS #
Permethrin (36.8%)	52645-53-1
Stoddard Solvent (< 25.2%)	8052-41-3
Surfactant Blend (< 8.5%)	None
1,2,4 Trimethylbenzene (< 1.1%)	95-63-6

### Fire and Explosion Hazard Information

The water-based emulsion of Dragnet FT Termiticide is not explosive or flammable.

### Health Hazard Information

Dragnet FT, as a concentrate, as labeled "Caution" for all EPA required acute toxicity testing ("Warning" in California only). Keep out of the reach of children. Harmful if swallowed, inhaled or absorbed through the skin.

	Acute Mammalian Toxicity	
	Concentrate	Emulsion
Acute Oral	998 mg/kg	>20,000 mg/kg
Acute Dermal	>2,000 mg/kg	>10,000 mg/kg
Acute Inhalation	> 4.3 mg/L	> 6.38 mg/L (maximum attainable concentration)

Acute toxicities are determined by feeding or applying the termiticide to experimental animals. Results of toxicity testing are expressed in terms of the weight of the termiticide (in milligrams) compared to the weight of the test animals (in kilograms). The term LD<sub>50</sub> indicates the approximate amount of termiticide per weight of the test animals which is lethal to half of the test animals. The larger the LD<sub>50</sub> value, the less toxic is the termiticide.

# Specimen Label



# Equity\*

Termiticide  
Concentrate

## Specialty Termiticide

To be applied by or under the direct supervision of commercial applicators responsible for insect control programs

### Active Ingredient:

chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate. ....22.5%

Inert Ingredients .....77.5%

Contains 2 pounds of chlorpyrifos per gallon.

EPA Reg. No. 62719-167

EPA Est. 464-MI-1

## Precautionary Statements

### Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

## CAUTION PRECAUCION:

Precaucion al usuario: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

### Harmful If Swallowed, Inhaled Or Absorbed Through Skin

Avoid contact with skin, eyes, or clothing. Wear eye protection. Avoid breathing spray mist. Handle concentrate in a ventilated area. Wear protective clothing and chemically resistant gloves when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. Keep away from food, feed-stuffs and water supplies.

### First Aid

If swallowed: Call a physician or Poison Control Center immediately. Do not induce vomiting. Do not give anything by mouth to an unconscious person.

If on skin: Immediately wash with plenty of soap and water. Get medical attention.

If in eyes: Flush with plenty of water for 15 minutes. Get medical attention.

If inhaled: Remove victim to fresh air and if not breathing give artificial respiration, preferably mouth to mouth. Get medical attention.

Note to physician: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

### Environmental Hazards

This pesticide is toxic to birds and wildlife, and extremely toxic to fish and aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Cover or incorporate spills. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

### Physical or Chemical Hazards

Combustible. Do not use or store near heat or open flame.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.

In case of an emergency endangering life or property involving this product, call collect 517-636-4400.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

\*  
Equity

## **First Aid Procedures (for 0.5% emulsion)**

### **Eye**

Flush eyes with plenty of water. Obtain medical attention if irritation occurs and persists.

### **Skin**

Wash skin with plenty of soap and water. If irritation occurs and persists, call a physician.

### **Inhalation**

Remove to fresh air. If breathing difficulty or discomfort occurs, obtain medical attention.

### **Ingestion**

Drink 1 or 2 glasses of water. Call a physician or Poison Control Center.

### **Note to Physician**

Dragnet FT emulsion contains a low concentrate of the pyrethroid termiticide permethrin, stoddard solvent and the remainder is primarily water. Aromatic hydrocarbons can produce severe pneumonitis if aspirated during vomiting. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

## **Environmental and Disposal Information**

### **Spill Control and Cleanup**

Isolate and post spill area. Long-sleeved uniform or coveralls should be worn, and pesticide protective gloves such as nitrile butyl rubber should be worn. Keep out animals and unprotected persons. Keep emulsion out of streams and sewers. Dike to confine spills, and absorb with an absorbent such as clay, sand or cat litter. Place in a DOT approved drum and contact appropriate regulatory agencies prior to disposal. To decontaminate spill area, tools and equipment, wash with a detergent/water mixture and properly dispose of solution as contaminated waste.

### **Environmental Hazards**

This product is extremely toxic to bees exposed to direct treatment or residues. Do not allow it to drift to areas where bees are actively foraging. The product is extremely toxic to fish. Use with care when applying to areas adjacent to any body of water. Remove pets and cover aquariums before treatment.

### **Occupational Exposure Limits**

Neither OSHA, ACHIH nor other government agencies have established limits for the active ingredient in air or water.

### **Regulatory Status**

Dragnet FT Termiticide is registered by authority of the U.S. Environmental Protection Agency and the Federal Insecticide, Fungicide and Rodenticide Act.

## Directions for Use

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

Read all Directions for Use carefully before applying.

Do not tank mix this product with products containing dichlorvos (DDVP).

Do not formulate this product into other end-use products.

## STORAGE AND DISPOSAL

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

**Storage:** Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Avoid storing above 122° F for extended periods of time. Storage below 40° F may result in formation of crystals. If product crystallizes, store at 55-75° F and shake occasionally to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

**Container Disposal for Non-refillable Containers:** Triple rinse (or equivalent) then offer for recycling or reconditioning, or puncture and/or crush rinsed, empty container and dispose of in a sanitary landfill, or other procedures approved by state and local authorities.

or

Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Container Disposal for Refillable Containers:** Replace the dry disconnect cap, if applicable, and seal all openings which have been opened during use. Return the empty container to a collection site designated by DowElanco. If the container has been damaged and cannot be returned according to the recommended procedures, contact DowElanco Customer Service Center at 1-800-258-1470 to obtain proper handling instructions

## Handling Procedures

Wear protective clothing when using or handling this product to help greatly reduce exposure to eyes and skin. As a minimum, eye protection, chemically resistant gloves and footwear, a long-sleeved shirt and long-legged pants or coveralls are recommended. To avoid breathing spray mist during application in confined areas, wear a mask or respirator of a type recommended by NIOSH for filtering spray mists.

## General Information

### Subterranean Termites

Equity Termiticide Concentrate for soil treatment is used to establish a barrier which is lethal to termites. In order to provide an effective barrier between the wood in the structure and termite colonies in the soil, disperse the chemical emulsion so as to avoid untreated gaps in the barrier.

It is important that the service technician be familiar with current control practices including trenching, rodding, subslab injection, and low pressure spray applications. These techniques must be correctly employed to prevent or control infestations by subterranean termite species of *Reticulitermes*, *Zootermopsis*, *Heterotermes*, and *Coptotermes*. Choice of appropriate procedures includes consideration of such variable factors as the design of the structure, water table, soil type, soil compaction, grade conditions, and the location and type of domestic water supplies. The biology and behavior of the involved termite species are important factors to be known as well as suspected location of the colony and severity of the infestation within the structure to be protected. For advice concerning current control practices for specific local conditions, consult resources in structural pest control.

## General Use Precautions

Contamination of public and private water supplies must be avoided by following these minimum precautions:

1. Use anti-backflow equipment or procedures to prevent siphonage of pesticide back into water supplies.
2. Do not treat soil that is water saturated or frozen.
3. Consult Federal, state, and local specifications for information regarding approved treatment practices in your area.

Structures that contain wells or cisterns may be treated using the following guidelines:

1. Do not treat soil while it is beneath or within the foundation of a structure that contains a well or cistern. The treated backfill method may be used if the soil is removed and treated outside the foundation.
2. If treatment must be made along exterior foundation walls of structures containing wells or cisterns or other difficult situations such as near wells or cisterns, along fieldstone or rubble walls, along faulty foundation walls, around pipes and utility lines which lead downward from the structure to a well, pond, or other body of water, application may be made in the following manner:

### Excavation/Treated Backfill Technique

- a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material or into a wheelbarrow.
  - b. Treat the soil at the rate of 4 gallons of diluted emulsion per 10 linear feet per foot of depth of the trench or 1 gallon of dilution per 1.0 cubic feet (See "Rate Determination Guidelines"). An initial treatment using a 0.75-1.0% dilution will provide effective, optimum long term residual control. Mix thoroughly into the soil taking care to contain the liquid and prevent runoff or spillage.
  - c. After the treated soil has absorbed the diluted emulsion, replace the soil into the trench.
3. Infested and/or damaged wood can be treated using an injection technique such as is described in "Control of Wood Infesting Insects".

All nonessential wood and cellulose containing materials, including scrap wood and form boards, should be removed from around foundation walls, crawl spaces, and porches. This does not include existing structural soil contact wood that has been treated.

## Rate Determination Guidelines

Consult the local extension agent or state entomologist for application rate recommendations.

An initial treatment using a 0.75-1.0% dilution will provide effective, optimum long term residual control. The 0.75% rate may also be used when making follow-up or spot treatments with no reinspection restriction.

A 2.0% dilution may be used to protect utility poles and fence posts.

Table 1: Dilution Directions

Gallons of Finished Dilution Desired	Equity Needed			
	0.5%	0.75%	1.0%	2.0%
1	2.7 fl oz	4 fl oz	5.3 fl oz	10.7 fl oz
5	13.3 fl oz	20 fl oz	26.7 fl oz	53.4 fl oz
10	26.7 fl oz	40 fl oz	53.4 fl oz	107 fl oz
24	0.5 gal	3 qt	1 gal	2 gal
48	1 gal	1.5 gal	2 gal	4 gal
97	2 gal	3 gal	4 gal	8 gal

## Mixing Directions

It is important that the termiticide dilution be uniformly mixed in the spray tank before and during beginning the treatment. The initial mixing will be enhanced by agitation, circulation through the treating hose, and the filling process. By-pass, jet, or mechanical agitation will ensure that the dilution remains uniformly mixed during application.

1. Fill tank 1/4 to 1/3 full.
2. Start pump to begin by-pass agitation and place end of treating tool in tank to allow circulation through hose.
3. Add appropriate amount of Equity.
4. Add remaining amount of water.
5. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

## Application Volume

To ensure thorough and complete coverage in different soil types, it may become necessary to adjust the volume being applied. In situations such as heavy, clay-type soils which will not accept large amounts of water, reduced volumes can be used which will deliver the appropriate concentrations of termiticide in the soil. This would also apply to sensitive areas and/or horizontal applications where less volume may be desirable. Minimum volumes will be specified in the appropriate use directions.

In light textured soils such as sand or gravel which accept larger amounts of water, increased volumes which deliver the appropriate concentration of termiticide in the soil may be used. Maximum volumes will be specified in the appropriate use directions.

## Preconstruction Subterranean Termite Treatment

Effective preconstruction treatment for subterranean termite prevention requires the establishment of vertical and/or horizontal chemical barriers between wood in the structure and the termite colonies in the soil. To meet FHA termite proofing requirements, follow the latest edition of the Housing and Urban Development (HUD) Minimum Property Standards. Follow state and local regulations to meet minimum treatment standards for preventive preconstruction treatments.

All holes drilled in construction elements for preconstruction treatments should be securely plugged following the application.

See "Rate Determination Guidelines" and "Table 1" for dilution directions.

1. For horizontal barriers, applications shall be made using a low pressure spray after grading is completed and prior to the pouring of the slab or footing.

- a. For a 1.0% initial rate, apply 1 gallon of dilution per 10 square feet, or use 5.3 fluid ounces of Equity per 10 square feet in sufficient water (no less than 1/2 gallon or more than 2 gallons) to provide thorough and continuous coverage of the area being treated (See "Application Volume").

For a 0.75% rate, apply 1 gallon of dilution per 10 square feet or use 4 fluid ounces of Equity per 10 square feet in sufficient water (not less than 1/2 or more than 2 gallons) to provide thorough and continuous coverage of the area being treated (See "Application Volumes").

If the fill is washed gravel or other coarse material, it is important that a sufficient amount of dilution be used to reach the soil substrate beneath the coarse fill.

- b. If concrete slabs cannot be poured over the soil the same day it has been treated, a vapor barrier should be placed over the treated soil to prevent disturbance of the termiticide barrier.

2. For vertical barriers, apply the 0.75-1.0% dilution at a rate of 4 gallons per 10 linear feet per foot of depth. Establish vertical barriers in areas such as around the base of foundations, plumbing lines, back-filled soil against foundation walls and other areas which merit more than just a horizontal barrier.

- a. Rodding and/or trenching applications should be made to reach the top of the footing. Rod holes should be spaced to provide a continuous barrier.

- b. Trenches need not be wider than 6 inches. Treat soil with the dilution as it is being replaced in the trench.

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 21.2 fluid ounces of Equity per 10 linear feet per foot of depth from grade to top of footing in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage.

For a 0.75% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 16 fluid ounces of Equity per 10 linear feet per foot of depth from grade to top of footing in sufficient water (not less than 2 gallon or more than 8 gallons) to ensure complete coverage.

- c. Hollow block foundations or voids of masonry can be treated to make a complete chemical barrier especially if the soil was not treated prior to pouring the footing. Apply the dilution at a rate of 2 gallons per 10 linear feet so that it reaches the top of the footing.

- d. For crawl spaces, establish a vertical barrier on both sides of the foundation and around all piers and areas where underground utilities exit the soil. Do not apply the dilution to the entire surface area intended as the crawl.

3. For plenum type structures which use a sealed underfloor space to circulate heated and/or cooled air throughout the structure, apply the dilution at a rate of 4 gallons per 10 linear feet per foot of depth. Soil adjacent to both sides of foundation walls, supporting piers, plumbing and conduits should be treated by trenching or rodding (where soil conditions permit) to a depth of 6 inches or, if less shallow, to the top of the footing. When conditions will not permit trenching or rodding, surface application adjacent to interior foundation walls may be made but the treated strip shall not exceed a width of 18 inches, horizontally, from the foundation walls, piers, or pipes. The surface application should be made at a rate of 1 gallon per 10 square feet as a very coarse spray under low pressure (not to exceed 20 P.S.I. when measured at the treating tool). After soil treatment, a continuous vapor barrier of at least 6 mil polyethylene film or other suitable vapor barrier must be installed on the ground surface over the entire subfloor area and on the inside of the plenum walls, in accordance with the recommended practice for plenum type structures.

## Postconstruction Treatments

See "Rate Determination Guidelines" and "Table 1" for dilution directions.

**Precaution:** Do not apply dilution until location of heat or air conditioning ducts, vents, water and sewer lines and electrical conduits are known and identified. Extreme caution must be taken to avoid contamination of these structural elements and airways.

All holes drilled in construction elements of living areas of home for postconstruction treatment should be securely plugged following application.

1. For slab-on-ground construction applications may be made using techniques such as sub-slab injection, rodding and/or trenching. Injectors should not extend beyond the tops of the footings.

- a. Treat along the outside of the foundation to form a continuous termiticide barrier in the soil.

For shallow foundations, 1 foot or less, dig a narrow trench approximately 6 inches wide along the outside of the foundation walls. Do not dig below the bottom of the footings. For foundations with exposed footings, dig a trench alongside the footing taking care not to undermine the footing. The dilution should be applied to the trench and mixed with the soil as it is replaced in the trench.

For a 0.75% rate, apply 4 gallons of dilution per 10 linear feet or use 16 fluid ounces of Equity per 10 linear feet in sufficient water (not less than 2 gallons or more than 8 gallons) to provide thorough and complete coverage of the area being treated (See Application Volume section).

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet or use 21.2 fluid ounces of Equity per 10 linear feet in sufficient water (no less than 2 gallons or more than 8 gallons) to provide thorough and complete coverage of the area being treated (See "Application Volume").

For foundations with footings deeper than 1 foot, apply the dilution at a rate of 4 gallons per 10 linear feet per foot of depth.

- b. When treating cracks and expansion joints in the slab, along sidewalks or patios adjacent to the exterior foundation wall or other areas where holes are to be drilled to form a continuous termiticide barrier, the holes should be spaced at intervals up to 24 inches depending on soil type.

Hard, dry soils typically allow good lateral (horizontal) dispersion. However, they may be slow in absorption or downward movement. Care must be taken when injecting through slabs into areas with this type of soil. Low pressures should be considered in this situation. This will help to avoid backsplashing from the injection hole, backflow from cracks and expansion joints, and unwanted emergence of the termiticide dilution from adjacent drill holes. A slow, low pressure application using the proper volume of termiticide dilution will allow the soil to absorb the liquid and provide an adequate vertical barrier. The wider drill hole spacings (18 to 24 inches) can usually be used in this situation. Sand, loam, or gravel backfill materials are commonly found under slab foundations. The type of fill, amount of settling that has occurred, moisture content, etc., will determine drill hole spacing and amount of termiticide dilution to be injected through each hole. Highly absorptive soils or those with large pore spaces (gravel, coarse sand) will afford rapid downward (vertical) movement and limited lateral (horizontal) distribution of the termiticide dilution. In this situation, consider using a lateral dispersion tip on the sub-slab injector and place the drill holes closer together (12 to 18 inches).

For a 0.75-1.0% rate apply 4 gallons of dilution per 10 linear feet.

- c. It may be necessary to treat along one side of interior partition walls if there are cracks in the slab, plumbing entry points, existing termite infestations, or other conditions which would make treatment appropriate.
- d. To complete the termiticide barrier under slab foundations, it may be necessary to drill and treat near plumbing and electrical entry areas, cracks, or other areas where termites might enter the structure. In this instance, one or more holes should be

drilled in the slab as close to the entry point as is practical and termiticide placed in the fill. As a general rule, 3 to 5 gallons of dilution per entry point will usually give adequate coverage, however, the use of directional or lateral dispersion tips or foam delivery systems can give adequate coverage with lower volumes. Location of the drill hole in relation to the entry point, type of soil fill, presence or absence of a vapor barrier, application pressure and other considerations will affect the coverage and volume of termiticide needed to form a complete barrier. Precautions must be taken to avoid drilling into plumbing or electrical conduit.

- e. When necessary, drill through the foundation walls from the outside and force the dilution just beneath the slab either along the inside of the foundation or along all the cracks and expansion joints and other critical areas.

- f. Bath traps: Exposed soil or soil covered with tar or a similar type sealant beneath and around plumbing and/or drain pipe entry areas may be treated with a 0.75-1.0% dilution of Equity.

An access door or inspection vent should be cut and installed, if not already present. After inspection and removal of any wood or cellulose debris, the soil can be treated by rodding or drenching the soil. A one square foot bath trap will usually require about 3 to 5 gallons of dilution for thorough and complete coverage.

2. Hollow block foundations or voids in masonry resting on the footing can be treated to make a continuous chemical barrier in the voids. If the void has direct contact with the soil, it should be treated. Apply at a rate of 2 gallons of dilution per 10 linear feet to reach the top of the footing or soil. It is not necessary to treat the entire vertical surface of the void, rather, apply dilution to the lower part of the void so that it reaches the top of the footing or the soil.

3. For basements, apply at a rate of 4 gallons of dilution per 10 linear feet. Where footings are greater than 1 foot of depth from the grade to the top of the footing, application may be made by trenching and/or rodding at a rate of 4 gallons of dilution per 10 linear feet per foot of depth. Treat outside of foundation walls, and if necessary beneath the basement floor along inside of foundation walls, along cracks in basement floors, along interior load bearing walls, around sewer pipes, conduits, and piers.

4. In crawl spaces for a 0.75-1.0% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth. Treat both sides of foundation and around all piers and pipes.

- a. Rodding and/or trenching applications should be made to reach the top of the footing. Rod holes should be spaced to provide a continuous chemical barrier.
- b. Trenches need not be wider than 6 inches nor below the top of the footing. The emulsion should be mixed with the soil as it is replaced in the trench.

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 21.2 fluid ounces of Equity per 10 linear feet per foot of depth from grade to top of footing in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage.

For a 0.75% rate, apply 4 gallons of dilution or 16 fluid ounces of Equity in sufficient water (not less than 2 gallons or more than 8) per 10 linear feet per foot of depth.

- c. For inaccessible underfloor spaces, treat soil by alternate method such as drilling and rodding through foundation walls from the outside.

- d. When conditions will not permit trenching, i.e. inadequate soil to wood clearance, rocky soil, etc., a surface application may be made adjacent to interior foundation walls, piers, and pipes but the treated strip shall not exceed 18 inches in width. The surface application should be made in a manner that avoids runoff. Use a very coarse spray at a pressure not exceeding 20 P.S.I. when measured at the treating tool. Structures should be ventilated during application and until the treatment is dry.

For a 0.75% rate, apply 4 gallons of dilution per 10 linear feet or 16 fluid ounces of Equity per 10 linear feet in sufficient water (not less than 2 gallons or more than 8) to ensure complete coverage (refer to Application Volume section).

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet or 21.2 fluid ounces of Equity per 10 linear feet in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage (See "Application Volume").

In the presence of unsupported termite tubes, mechanically destroy each tube and apply approximately 1 pint of 0.5 to 1.0% dilution to an area of no more than 18 inches in diameter where the tubes emerged from the soil.

5. In plenum type structures which use a sealed underfloor space to circulate heated and/or cooled air within the structure, apply the 0.75-1.0% dilution at a rate of 4 gallons per 10 linear feet per foot of depth. Soil adjacent to both sides of the foundation walls, supporting piers, plumbing and conduits should be treated by trenching or rodding (where soil conditions permit) to a depth of 6 inches or to the top of the footing. When conditions will not permit trenching or rodding, a surface application adjacent to interior foundation walls may be made, but the treated strip shall not exceed a width of 18 inches, horizontally, from the foundation piers or pipes. The surface application should be made at a rate of 1 gallon per 10 square feet as a very coarse spray under low pressure (not to exceed 20 P.S.I. when measured at the treating tool). In order to properly calculate the amount of termiticide dilution needed, use the following guideline: A strip 18 inches wide and 6 feet 8 inches long is equal to 10 square feet. Before treatment, a barrier of at least 6 mil polyethylene film or other suitable vapor barrier must be present on this ground surface over the entire subfloor area in accordance with recommended practices for plenum type structures. Install a new vapor barrier if barrier is absent or deteriorated. The vapor barrier film on the ground and foundation walls must be folded back from the areas to be treated prior to treatment and replaced immediately following treatment. Structures should be ventilated during application and until treatment is dry.
6. Application using foam generating equipment: In situations where conventional application methods have not or are not likely, to provide adequate coverage, foam generating equipment or similar machines can be used to provide a continuous barrier. Treatment of filled porches, chimney bases, soil under slabs and treatment of wall voids are examples where foam applications may be useful.

**Foam Treatment Recommendations:** Refer to label of foaming adjuvant for proper amount of material to add per gallon of Equity dilution.

The following provides the amount of Equity required for a given area and volume range of the prefoamed termiticide dilution necessary for application of the product.

For a 0.75% rate, apply 16 fluid ounces of Equity per 10 linear feet using no less than 2 gallons, or more than 8 gallons, of prefoamed dilution.

For a 1% rate, apply 21.2 fluid ounces of Equity per 10 linear feet using no less than 2 gallons, or more than 8 gallons, of prefoamed dilution.

## Underground Utility Cable and Conduit

**Preventative Treatment For Use Only In Guam, Hawaii, and Other Pacific Islands:** Use a 1.0% to 2.0% dilution (See "Rate Determination Guidelines" and "Table 1" for dilution directions). After digging the trench, place approximately 6 inches of backfill or sand at the bottom and apply 2 gallons of the dilution per 10 linear feet. Allow to dry and place the cable on the backfill. Cover with an additional 6 inches of backfill or sand and apply another 2 gallons of emulsion per 10 linear feet. Finish filling trench with untreated soil.

Wherever cables emerge from the soil to enter poles, light frames, etc., treat the soil around the cable and pole or frame to establish a continuous 6 inch chemical barrier.

A continuous 6 inch chemical barrier must be established around the cable to insure protection from termite attack.

## Utility Poles and Fence Posts

**Preventative Treatment:** Use a 1.0% to 2.0% dilution (See "Rate Determination Guidelines" and "Table 1" for dilution directions). After pole or post hole has been dug, mix the dilution with the soil as it is being replaced to a depth of approximately 10 inches. Place pole or post on top of this layer. The remaining soil fill and termiticide dilution should be mixed while backfilling the hole. The treated soil zone around the post or pole should be approximately 6 inches wide. Soil for the base layer and backfill of each pole or post should be treated at a rate of 4 gallons of dilution per 10 cubic feet of soil.

**Remedial Treatment:** To control existing infestations or to prevent infestation of posts and poles already in place, use a 1.0% to 2.0% dilution. The termiticide dilution should be injected into termite galleries or channels in the wood. For maximum protection, injection sites should be at or below grade.

Posts or poles may also be treated by rodding down to the base of the structure. Rod holes should be placed approximately 3 inches away from the pole and about 6 inches apart. Inject approximately 12 fluid ounces of dilution per foot of depth into each rod hole.

It may be appropriate to use one or both treatment techniques depending upon the specific circumstances at the work site e.g. soil type.

### Retreatment Statement

Retreatment of subterranean termites may be made any time there is evidence of reinfestation, disruption or loss of the barrier due to construction, excavation, landscaping, etc. Retreatments may be made to vulnerable or reinfested areas in accordance with application techniques described on this label.

Treatments may be made as either a spot or complete treatment. The timing of these retreatments will vary, depending on factors such as termite pressure, soil conditions, etc., which may reduce the effectiveness of the barrier.

Annual retreatments are prohibited unless reinfestation or barrier disruption has occurred.

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## Warranty Disclaimer

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DowElanco 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. DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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## Inherent Risks of Use

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It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by Buyer.

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## Limitation of Remedies

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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 DowElanco'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.

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

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

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LABEL CODE 113-58-004  
EPA APPROVAL 04/10/92, 06/15/92, 09/29/92  
REPLACES 113-58-001, 123-10-030, 123-10-034

Revisions Include:

- 1) Previously approved supplemental labeling entitled "Postconstruction Application Using Foam Generating Equipment" was added to main label.
- 2) Previously approved supplemental labeling entitled "Pest Control on Outside Surfaces and Around Buildings" was added to main label.
- 3) Ingredient statement changed to reflect nominal concentration.

## Control of Wood Infesting Insects

### Dosage and Mixing Directions

Equity is recommended for use as an aqueous emulsion containing 0.5% to 1.0% chlorpyrifos. See "Table 1" for dilution directions.

### Advisements

When spraying overhead interior living areas of homes, apartment buildings, etc., cover surfaces below the area being sprayed with plastic sheeting or other material.

Contact with treated surfaces should be avoided until spray has dried. Cover or remove exposed foods before treatment. Do not use in structures housing animals which are intended for or which produce products to be used for food purposes. Do not use for above ground control of wood infesting insects in food areas of food handling establishments, restaurants or other areas where food is commercially prepared or processed.

To control wood infesting insects such as powderpost beetles (*Lyctidae*), false powderpost beetles (*Bostrichidae*), deathwatch beetles (*Anobiidae*), old house borers (*Cerambycidae*) and ambrosia beetles (*Scolytidae*) in homes and other structures, treatments may be applied either as coarse sprays or by brushing the product onto targeted surfaces. Use a sufficient amount of spray to cover the area to the point of wetness but avoiding runoff. Use the following guidelines to determine appropriate rates of application:

**New Wood**, (typically less than 10 years of age) apply approximately 1 gallon of dilution per 150 square feet as a coarse spray.

**Old Wood**, (typically greater than 10 years of age) apply approximately 1 gallon of dilution per 100 square feet as a coarse spray.

### Treatment Directions

For control of carpenter ants in homes and other structures apply dilution around doors and windows and other places where carpenter ants enter the premises and where they crawl and hide. Also spray into cracks and crevices or through openings or small newly drilled holes into wall voids where these ants or their nests are present. Use a sufficient amount of spray to cover the area to the point of wetness but avoiding runoff.

For control of termites (localized areas of infested wood in structures), apply dilution to voids and channels in damaged wood and in spaces between members of a structure and between wood and foundations where termite infestation is likely to occur. Application may be made to inaccessible areas by drilling, and then injecting the emulsion. Use a sufficient amount of spray to cover the area to the point of wetness but avoiding runoff. Treatment of localized areas is intended to kill workers and winged reproductive forms of termites in the treated areas and to prevent infestations for a temporary period. This type of application is not intended to be a substitute for soil treatment or mechanical alteration to control subterranean termites.

## Pest Control on Outside Surfaces and Around Buildings

To control ants, bees, carpenter ants, clover mites, cockroaches, crickets, earwigs, homets, millipedes, scorpions, spiders, tick wasps and yellowjackets.

**Outside surfaces:** Apply Equity termiticide as a residual spray to outside surfaces of buildings including porches, window frames, eaves, patios, garages, refuse dumps and other areas where pests congregate or have been observed. Treatment may be repeated as needed to maintain effectiveness.

**Perimeter sprays:** To help prevent infestation of buildings, treat a band of soil and vegetation 6 to 10 feet wide around and adjacent to the building. Also, treat the building foundation to a height of 2 to 3 feet where pests are active and may find entrance. For scorpions, treat or remove accumulations of lumber, firewood, and other materials which serve as insect harborage sites.

**Dosage and Mixing Instructions:** Use Equity mixed as a 0.25% to 0.5% dilution as indicated in the following table:

Gallons of Finished Dilution Desired	Equity Required	
	0.25% Solution	0.5% Solution
1	1.3 fl oz	2.6 fl oz
5	6.7 fl oz	13.3 fl oz
10	13.3 fl oz	26.6 fl oz
24	1 qt	1/2 gal
48	1/2 gal	1 gal
97	1 gal	2 gal

Small amounts of solution mixed at 0.5% to 1.0% termiticide rates remaining in the spray tank can be diluted as indicated in the following table and used to treat outside surfaces or perimeter areas:

Concentration of Termiticide Dilution	Amount of water to Add to Each Gallon of Termiticide Dilution to Provide a 0.25% Spray	Amount of water to Add to Each Gallon of Termiticide Dilution to Provide a 0.5% Spray
0.5%	1 gallon	none
0.75%	2 gallons	0.5 gallon
1.0%	3 gallons	1 gallon

# Material Safety Data Sheet



## EQUITY\* Termiticide Concentrate

Emergency Phone: 517-636-4400  
General Phone: 1-800-352-6776

EPA Reg. Number: 62719-167  
Effective Date: October 5, 1994  
Product Code: 26769  
MSDS Number: 003727  
DowElanco • Indianapolis, IN 46268

### 1. INGREDIENTS:

(% w/w, unless otherwise noted)

Chlorpyrifos (O,O-Diethyl O-(3,5,6-Trichloro-2-Pyridinyl) Phosphorothioate) CAS# 002921-88-2 .....	22.5%
Other ingredients, total, including Proprietary emulsifiers Proprietary solvents Propylene glycol CAS# 000057-55-6	77.5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 2. PHYSICAL DATA:

**BOILING POINT:** Not determined  
**VAPOR PRESSURE:** Not determined  
**VAPOR DENSITY:** Not determined  
**SOLUBILITY IN WATER:** Emulsifiable  
**SPECIFIC GRAVITY:** 1.07 at 20°C  
**APPEARANCE:** Slightly cloudy, colorless liquid  
**ODOR:** Information not available

### 3. FIRE AND EXPLOSION HAZARD DATA:

**FLASH POINT:** 239°F, 115°C  
**METHOD USED:** SFCC  
**FLAMMABLE LIMITS:**  
LFL: Not determined  
UFL: Not determined  
**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub>, Dry chemical  
**FIRE AND EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.  
**FIRE-FIGHTING EQUIPMENT:** Use positive-pressure, self-contained breathing apparatus and full protective equipment.

### 4. REACTIVITY DATA:

**STABILITY: (CONDITIONS TO AVOID)** Avoid heating above 50°C (122°F). Chlorpyrifos undergoes exothermic decomposition at approximately 130°C (266°F) which can lead to higher temperatures and violent decomposition if generated heat is not removed.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)** Oxidizing materials and strong acid. If in contact with organic materials and finely divided inorganic materials such as clay, rock wool insulation, rags, paper etc., this product may undergo spontaneous combustion.

**HAZARDOUS DECOMPOSITION PRODUCTS:** May produce oxides of carbon under fire conditions.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### 5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

**ACTION TO TAKE FOR SPILLS:** Wear long pants, long-sleeve shirt, and impervious rubber gloves when handling concentrate and cleaning up spills. Absorb spills with an inert absorbant material such as Hazorb, Zorb, sand or dirt. Scoop contaminated absorbant material into a container. Thoroughly wash body areas that come into contact with this product. For large spills consult DowElanco(517-636-4400).

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

### 6. HEALTH HAZARD DATA:

**EYE:** May cause slight eye irritation. Corneal injury is unlikely.

**SKIN CONTACT:** Prolonged exposure not likely to cause significant skin irritation.

**SKIN ABSORPTION:** A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD<sub>50</sub> for skin absorption in rabbits is greater than 2000 mg/kg.

**INGESTION:** Single dose oral toxicity is considered to be low. The oral LD<sub>50</sub> for male rats was 623 mg/kg. Small amounts that might be swallowed incidental to normal handling operations are not likely to cause injury; swallowing larger amounts may cause injury. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia.

# Material Safety Data Sheet



**DowElanco**  
**EQUITY\* Termiticide**  
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**INHALATION:** At room temperature, vapors are minimal due to low vapor pressure. If material is heated or mist is produced, concentrations may be attained that may be hazardous on single exposure. The LC50 for male and female rats was 2.6 and 1.62 mg/l for 4 hours.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, or convulsions. Active ingredient produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during use of this product.

**CANCER INFORMATION:** Chlorpyrifos and other tested components did not cause cancer in long-term animal studies.

**TERATOLOGY (BIRTH DEFECTS):** Chlorpyrifos did not cause birth defects in laboratory animals.

**REPRODUCTIVE EFFECTS:** Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

**MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):** Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

## 7. FIRST AID:

**EYES:** Flush eyes with plenty of water for 15 minutes. Get medical attention.

**SKIN:** Immediately wash with plenty of soap and water. Get medical attention.

**INGESTION:** Call a physician or Poison Control Center. Do not induce vomiting. Do not give anything by mouth to an unconscious person.

**INHALATION:** Remove victim to fresh air and if not breathing give artificial respiration, preferably mouth to mouth. Get medical attention.

**NOTE TO PHYSICIAN:** The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when con-

sidering emptying the stomach.

Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

## 8. HANDLING PRECAUTIONS:

**EXPOSURE GUIDELINE(S):** Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/m<sup>3</sup>, Skin. Propylene glycol: AIHA WEEL is 50 ppm total, 10 mg/m<sup>3</sup> aerosol only. Contains a proprietary ingredient for which an exposure limit has been established. Contact DowElanco for further information. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

**VENTILATION:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration.

**SKIN PROTECTION:** Wear protective clothing and chemically resistant gloves when handling concentrate.

**EYE PROTECTION:** Wear eye protection, such as safety glasses.

## 9. ADDITIONAL INFORMATION:

**SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** See label. Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating or smoking. Keep away from food, feedstuffs, and water supplies. For health and safety information on end-use dilutions of up to 1% DURSBN insecticides, see the Health and Safety Fact Sheet, Form No. 312-10-014, available from DowElanco.

**MSDS STATUS:** Revised sections 1, 6, 7, 9, and regsheet.

# Material Safety Data Sheet



## DowElanco EQUITY\* Termiticide Concentrate

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### REGULATORY INFORMATION:

(Not meant to be all-inclusive—selected regulations represented).

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- An immediate health hazard
- A delayed health hazard

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in Section 1 of the MSDS.

<u>Chemical Name</u>	<u>CAS Number</u>	<u>List</u>
1,2-PROPANEDIOL	000057-55-6	PA1
CHLORPYRIFOS	002921-88-2	NJ3, PA1, PA3

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

#### **TOXIC SUBSTANCES CONTROL ACT (TSCA):**

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

#### **OSHA HAZARD COMMUNICATION STANDARD:**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### **NATIONAL FIRE PROTECTION ASSOCIATION**

##### **(NFPA) RATINGS:**

Category .....	Rating
Health .....	2
Flammability .....	1
Reactivity .....	1

The Information Herein is Given In Good Faith,  
But No Warranty, Express Or Implied, Is Made.  
Consult DowElanco For Further Information.

# Specimen Label



# Dursban\* TC

Termiticide  
Concentrate

## Specialty Termiticide

To be applied by or under the direct supervision of commercial applicators responsible for insect control programs

### Active Ingredient:

chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate ..... 42.8%

Inert Ingredients ..... 57.2%

Contains 4 pounds of chlorpyrifos per gallon.

EPA Reg. No. 62719-47

EPA Est. 464-MI-1

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## Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

### WARNING AVISO:

Precaucion al usuario: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

May Be Fatal If Swallowed • Excessive Absorption Through Skin May Be Fatal • Causes substantial but temporary eye injury • May cause skin irritation.

Do not get in eyes, on skin or clothing. Wear eye protection. Avoid breathing vapors and spray mist. Handle concentrate in a ventilated area. Wear protective clothing and chemically resistant gloves when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. Keep away from food, feedstuffs and water supplies.

### First Aid

If swallowed: Call a physician or Poison Control Center immediately. Do not induce vomiting. Contains an aromatic petroleum solvent. Do not give anything by mouth to an unconscious person.

If on skin: Immediately wash with plenty of soap and water. Get medical attention.

If in eyes: Flush with plenty of water for 15 minutes. Get medical attention.

If inhaled: Remove to fresh air if symptoms of cholinesterase inhibition appear and get medical attention immediately.

Note to physician: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

### Environmental Hazards

This pesticide is toxic to birds and wildlife, and extremely toxic to fish and aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Cover or incorporate spills. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

### Physical or Chemical Hazards

Combustible. Do not use or store near heat or open flame.

Notice: Read the entire label before using. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.

In case of an emergency endangering health or the environment involving this product, call collect 517-636-4400.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Dursban\* TC

## Directions for Use

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

Read all Directions for Use carefully before applying.

**Do not tank mix this product with products containing dichlorvos (DDVP).**

**Do not formulate this product into other end-use products.**

## STORAGE AND DISPOSAL

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

**Storage:** Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Avoid storing above 122°F for extended periods of time. Storage below 40°F may result in formation of crystals. If product crystallizes, store at 55-75°F and shake occasionally to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

**Container Disposal for Non-Refillable Containers:** Triple rinse (or equivalent) then offer for recycling or reconditioning, or puncture and/or crush rinsed, empty container and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

or

Triple rinse (or equivalent). Then dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Container Disposal for Refillable Containers:** Replace the dry disconnect cap, if applicable, and seal all openings which have been opened during use. Return the empty container to a collection site designated by DowElanco. If the container has been damaged and cannot be returned according to the recommended procedures, contact DowElanco Customer Service Center at 1-800-258-1470 to obtain proper handling instructions.

## Handling Procedures

Wear protective clothing when using or handling this product to help greatly reduce exposure to eyes and skin. As a minimum, eye protection and chemically resistant gloves and footwear, a long-sleeved shirt and long-legged pants or coveralls are recommended. To avoid breathing spray mist during application in confined areas, wear a mask or respirator of a type recommended by NIOSH for filtering spray mists.

## General Information

### Subterranean Termites

Dursban TC Termiticide Concentrate for soil treatment is used to establish a barrier which is lethal to termites. In order to provide an effective barrier between the wood in the structure and termite colonies in the soil, disperse the chemical emulsion so as to avoid untreated gaps in the barrier.

It is important that the service technician be familiar with current control practices including trenching, rodding, subslab injection and low pressure spray applications. These techniques must be correctly employed to prevent or control infestations by subterranean termite species of *Reticulitermes*, *Zootermopsis*, *Heterotermes* and *Coptotermes*.

Choice of appropriate procedures includes consideration of such variable factors as the design of the structure, water table, soil type, soil compaction, grade conditions and the location and type of domestic water supplies. The biology and behavior of the involved termite species are important factors to be known as well as suspected location of the colony and severity of the infestation within the structure to be protected. For advice concerning current control practices for specific local conditions, consult resources in structural pest control.

## General Use Precautions

Contamination of public and private water supplies must be avoided by following these minimum precautions:

1. Use anti-backflow equipment or procedures to prevent siphonage of pesticide back into water supplies.
2. Do not treat soil that is water saturated or frozen.
3. Consult Federal, state and local specifications for information regarding approved treatment practices in your area.

Structures that contain wells or cisterns may be treated using the following guidelines:

1. Do not treat soil while it is beneath or within the foundation of a structure that contains a well or cistern. The treated backfill method may be used if the soil is removed and treated outside the foundation.
2. If treatment must be made along exterior foundation walls of structures containing wells or cisterns or other difficult situations such as near wells or cisterns, along fieldstone or rubble walls, along faulty foundation walls, around pipes and utility lines which lead downward from the structure to a well, pond, or other body of water, application may be made in the following manner:

### Excavation/Treated Backfill Technique

- a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material or into a wheelbarrow.
  - b. Treat the soil at the rate of 4 gallons of diluted emulsion per 10 linear feet per foot of depth of the trench or 1 gallon of dilution per 1.0 cubic feet (See "Rate Determination Guidelines"). An initial treatment using a 1.0% dilution will provide effective, optimum long term residual control. Mix thoroughly into the soil taking care to contain the liquid and prevent runoff or spillage.
  - c. After the treated soil has absorbed the diluted emulsion, replace the soil into the trench.
3. Infested and/or damaged wood can be treated using an injection technique such as is described in "Control of Wood Infesting Insects".
- All nonessential wood and cellulose containing materials, including scrap wood and form boards, should be removed from around foundation walls, crawl spaces, and porches. This does not include existing structural soil contact wood that has been treated.

## Rate Determination Guidelines

Consult the local extension agent or state entomologist for application rate recommendations.

An initial treatment using a 1.0% dilution will provide effective, optimum long term residual control.

A 2.0% dilution may be used to protect utility poles and fence posts.

Gallons of Finished Dilution Desired	Dursban TC Needed		
	0.5%	1.0%	2.0%
1	1 1/3 fl oz	2 2/3 fl oz	5 1/3 fl oz
5	6 2/3 fl oz	13 1/3 fl oz	26 2/3 fl oz
10	13 1/3 fl oz	26 2/3 fl oz	53 1/3 fl oz
24	1 qt	1/2 gal	1 gal
48	1/2 gal	1 gal	2 gal
97	1 gal	2 gal	4 gal

## Mixing Directions

It is important that the termiticide dilution be uniformly mixed in the spray tank before beginning the treatment. Once mixed, Dursban TC will not settle out in the tank although the initial mixing will be enhanced by agitation, circulation through the treating hose, and the filling process.

1. Fill tank 1/4 to 1/3 full.
2. Start pump to begin by-pass agitation and place end of treating tool in tank to allow circulation through hose.
3. Add appropriate amount of Dursban TC.
4. Add remaining amount of water.
5. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

## Application Volume

To ensure thorough and complete coverage in different soil types, it may become necessary to adjust the volume being applied. In situations such as heavy, clay-type soils which will not accept large amounts of water, reduced volumes can be used which will deliver the appropriate concentrations of termiticide in the soil. This would also apply to sensitive areas and/or horizontal applications where less volume may be desirable. Minimum volumes will be specified in the appropriate use directions.

In light textured soils such as sand or gravel which accept larger amounts of water, increased volumes which deliver the appropriate concentration of termiticide in the soil may be used. Maximum volumes will be specified in the appropriate use directions.

## Preconstruction Subterranean Termite Treatment

Effective preconstruction treatment for subterranean termite prevention requires the establishment of vertical and/or horizontal chemical barriers between wood in the structure and the termite colonies in the soil. To meet FHA termite proofing requirements, follow the latest edition of the Housing and Urban Development (HUD) Minimum Property Standards. Follow state and local regulations to meet minimum treatment standards for preventive preconstruction treatments.

All holes drilled in construction elements for preconstruction treatments should be securely plugged following the application.

See "Rate Determination Guidelines" and "Table 1" for dilution directions.

1. For **horizontal barriers**, applications shall be made using a low pressure spray after grading is completed and prior to the pouring of the slab or footing.

- a. For a 1.0% rate, apply 1 gallon of dilution per 10 square feet, or use 2 2/3 fluid ounces of Dursban TC per 10 square feet in sufficient water (no less than 1/2 gallon or more than 2 gallons) to provide thorough and continuous coverage of the area being treated (See "Application Volume").

If the fill is washed gravel or other coarse material, it is important that a sufficient amount of dilution be used to reach the soil substrate beneath the coarse fill.

- b. If concrete slabs cannot be poured over the soil the same day it has been treated, a vapor barrier should be placed over the treated soil to prevent disturbance of the termiticide barrier.

2. For **vertical barriers**, apply the 1.0% dilution at a rate of 4 gallons per 10 linear feet per foot of depth. Establish vertical barriers in areas such as around the base of foundations, plumbing lines, back-filled soil against foundation walls and other areas which may warrant more than just a horizontal barrier.

- a. Rodding and/or trenching applications should be made to reach the top of the footing. Rod holes should be spaced to provide a continuous barrier.
- b. Trenches need not be wider than 6 inches. Treat soil with dilution as it is being replaced in the trench.

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 10 2/3 fluid ounces of Dursban TC per 10 linear feet per foot of depth from grade to top of footing in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage.

- c. Hollow block foundations or voids of masonry can be treated to make a complete chemical barrier especially if the soil was not treated prior to pouring the footing. Apply the dilution at a rate of 2 gallons per 10 linear feet so that it reaches the top of the footing.
- d. For crawl spaces, establish a vertical barrier on both sides of the foundation and around all piers and areas where underground utilities exit the soil. Do not apply the dilution to the entire surface area intended as the crawl.

3. For **plenum type structures** which use a sealed underfloor space to circulate heated and/or cooled air throughout the structure, apply the dilution at the rate of 4 gallons per 10 linear feet per foot of depth. Soil adjacent to both sides of foundation walls, supporting piers, plumbing and conduits should be treated by trenching or rodding (where soil conditions permit) to a depth of 6 inches or, if less shallow, to the top of the footing. When conditions will not permit trenching or rodding, surface application adjacent to interior foundation walls may be made but the treated strip shall not exceed a width of 18 inches, horizontally, from the foundation walls, piers or pipes. The surface application should be made at a rate of 1 gallon per 10 square feet as a very coarse spray under low pressure (not to exceed 20 P.S.I. when measured at the treating tool). After soil treatment, a continuous vapor barrier of at least 6 mil polyethylene film or other suitable vapor barrier must be installed on the ground surface over the entire subfloor area and on the inside of the plenum walls, in accordance with the recommended practices for plenum type structures.

## Postconstruction Treatments

See "Rate Determination Guidelines" and "Table 1" for dilution directions.

**Precaution:** Do not apply dilution until location of heat or air conditioning ducts, vents, water and sewer lines and electrical conduits are known and identified. Extreme caution must be taken to avoid contamination of these structural elements and airways.

All holes drilled in construction elements of living areas of home for postconstruction treatment should be securely plugged following application.

1. For **slab-on-ground construction** applications may be made using techniques such as sub-slab injection, rodding and/or trenching. Injectors should not extend beyond the tops of the footings.

- a. Treat along the outside of the foundation to form a continuous termiticide barrier in the soil.

For shallow foundations, 1 foot or less, dig a narrow trench approximately 6 inches wide along the outside of the foundation walls. Do not dig below the bottom of the footings. For foundations with exposed footings, dig a trench alongside the footing taking care not to undermine the footing. The dilution should be applied to the trench and mixed with the soil as it is replaced in the trench.

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet or use 10 2/3 fluid ounces of Dursban TC per 10 linear feet in sufficient water (no less than 2 gallons or more than 8 gallons) to provide thorough and complete coverage of the area being treated (See "Application Volume").

For foundations with footings deeper than 1 foot, apply the dilution at a rate of 4 gallons per 10 linear feet per foot of depth.

- b. When treating cracks and expansion joints in the slab, along sidewalks or patios adjacent to the exterior foundation wall or other areas where holes are to be drilled to form a continuous termiticide barrier, the holes should be spaced at intervals up to 24 inches depending on soil type.

Hard, dry soils typically allow good lateral (horizontal) dispersion. However, they may be slow in absorption or downward movement. Care must be taken when injecting through slabs into areas with this type of soil. Low pressures should be considered in this situation. This will help to avoid backspilling from the injection hole, backflow from cracks and expansion joints, and unwanted emergence of the termiticide dilution from adjacent drill holes. A slow, low pressure application using the proper volume of termiticide dilution will allow the soil to absorb the liquid and provide an adequate vertical barrier. The wider drill hole spacings (18 to 24 inches) can usually be used in this situation. Sand, loam, or gravel backfill materials are commonly found under slab foundations. The type of fill, amount of settling that has occurred, moisture content, etc., will determine drill hole spacing and amount of termiticide dilution to be injected through each hole. Highly absorptive soils or those with large pore spaces (gravel, coarse sand) will afford rapid downward (vertical) movement and limited lateral (horizontal) distribution of the termiticide dilution. In this situation, consider using a lateral dispersion tip on the sub-slab injector and place the drill holes closer together (12 to 18 inches).

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet.

- c. It may be necessary to treat along one side of interior partition walls if there are cracks in the slab, plumbing entry points, existing termite infestations, or other conditions which would make treatment appropriate.
- d. To complete the termiticide barrier under slab foundations, it may be necessary to drill and treat near plumbing and electrical entry areas, cracks, or other areas where termites might enter the structure. In this instance, one or more holes should be drilled in the slab as close to the entry point as is practical and termiticide placed in the fill. As a general rule, 3 to 5 gallons of dilution per entry point will usually give adequate coverage, however, the use of directional or lateral dispersion tips or foam delivery systems can give adequate coverage with lower volumes. Location of the drill hole in relation to the entry point, type of soil fill, presence or absence of a vapor barrier, application pressure and other considerations will affect the coverage and volume of termiticide needed to form a complete barrier. Precautions must be taken to avoid drilling into plumbing or electrical conduit.
- e. When necessary, drill through the foundation walls from the outside and force the dilution just beneath the slab either along the inside of the foundation or along all the cracks and expansion joints and other critical areas.
- f. Bath traps: Exposed soil or soil covered with tar or a similar type sealant beneath and around plumbing and/or drain pipe entry areas may be treated with a 1.0% dilution of Dursban TC.

An access door or inspection vent should be cut and installed, if not already present. After inspection and removal of any wood or cellulose debris, the soil can be treated by rodding or trenching the soil. A one square foot bath trap will usually require about 3 to 5 gallons of dilution for thorough and complete coverage.

2. **Hollow block foundations or voids in masonry resting on the footing** can be treated to make a continuous chemical barrier in the voids. If the void has direct contact with the soil, it should be treated. Apply at the rate of 2 gallons of dilution per 10 linear feet to reach the top of the footing or soil. It is not necessary to treat the entire vertical surface of the void, rather, apply dilution to the lower part of the void so that it reaches the top of the footing or the soil.
3. For **basements**, apply at a rate of 4 gallons of dilution per 10 linear feet per foot of depth. Where footings are greater than 1 foot of depth from the grade to the top of the footing, application may be made by trenching and/or rodding at a rate of 4 gallons of dilution per 10 linear feet per foot of depth. Treat outside of foundation walls, and if necessary beneath the basement floor along inside of foundation walls, along cracks in basement floors, along interior load bearing walls, around sewer pipes, conduits and piers.
4. In **crawl spaces** for a 1.0% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth. Treat both sides of foundation and around all piers and pipes.
- a. Rodding and/or trenching applications should be made to reach the top of the footing. Rod holes should be spaced to provide a continuous chemical barrier.
- b. Trenches need not be wider than 6 inches nor below the top of the footing. The emulsion should be mixed with the soil as it is replaced in the trench.

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 10 2/3 fluid ounces of Dursban TC per 10 linear feet per foot of depth from grade to top of footing in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage.

- c. For inaccessible underfloor spaces, treat soil by an alternate method such as drilling and rodding through foundation walls from the outside.
- d. When conditions will not permit trenching, i.e. inadequate soil to wood clearance, rocky soil, etc., a surface application may be made adjacent to interior foundation walls, piers, and pipes but the treated strip shall not exceed 18 inches in width. The surface application should be made in a manner that avoids runoff. Use a very coarse spray at a pressure not exceeding 20 P.S.I. when measured at the treating tool. Structures should be ventilated during application and until the treatment is dry.

For a 1.0% rate, apply 4 gallons of dilution per 10 linear feet or 10 2/3 fluid ounces of Dursban TC per 10 linear feet in sufficient water (not less than 2 gallons or more than 8 gallons) to ensure complete coverage (See "Application Volume").

In the presence of unsupported termite tubes, mechanically destroy each tube and apply approximately 1 pint of 1.0% dilution to an area of no more than 18 inches in diameter where the tubes emerged from the soil.

5. In plenum type structures, which use a sealed underfloor space to circulate heated and/or cooled air within the structure, apply the 1.0% dilution at the rate of 4 gallons per 10 linear feet per foot of depth. Soil adjacent to both sides of foundation walls, supporting piers, plumbing and conduits should be treated by trenching or rodding (where soil conditions permit) to a depth of 6 inches or to the top of the footing. When conditions will not permit trenching or rodding, a surface application adjacent to interior foundation walls may be made, but the treated strip shall not exceed a width of 18 inches, horizontally, from the foundation piers or pipes. The surface application should be made at a rate of 1 gallon per 10 square feet as a very coarse spray under low pressure (not to exceed 20 P.S.I. when measured at the treating tool). In order to properly calculate the amount of termiticide dilution needed, use the following guideline: A strip 18 inches wide and 6 feet 8 inches long is equal to 10 square feet. Before treatment, a barrier of at least 6 mil polyethylene film or other suitable vapor barrier must be present on this ground surface over the entire subfloor area in accordance with recommended practices for plenum type structures. Install a new vapor barrier if barrier is absent or deteriorated. The vapor barrier film on the ground and foundation walls must be folded back from the areas to be treated prior to treatment and replaced immediately following treatment. Structures should be ventilated during application and until treatment is dry.

6. Application using foam generating equipment: In situations where conventional application methods have not or are not likely, to provide adequate coverage, foam generating equipment or similar machines can be used to provide a continuous barrier. Treatment of filled porches, chimney bases, soil under slabs and treatment of wall voids are examples where foam applications may be useful.

**Foam Treatment Recommendations:** Refer to label of foaming adjuvant for proper amount of material to add per gallon of Dursban TC dilution.

The following provides the amount of Dursban TC required for a given area and volume range of the prefoamed termiticide dilution necessary for application of the product.

For a 1% rate, apply 10 2/3 fluid ounces of Dursban TC per 10 linear feet using no less than 2 gallons, or more than 8 gallons, of prefoamed dilution.

## Underground Utility Cable and Conduit

**Preventative Treatment for Use Only in Guam, Hawaii, and Other Pacific Islands:** Use a 1.0% to 2.0% dilution (See "Rate Determination Guidelines" and "Table 1" for dilution directions). After digging the trench, place approximately 6 inches of backfill or sand at the bottom and apply 2 gallons of the dilution per 10 linear feet. Allow to dry then replace the cable backfill. Cover with an additional 6 inches of backfill or sand and apply another 2 gallons of emulsion per 10 linear feet. Finish filling trench with untreated soil.

Wherever cables emerge from the soil to enter poles, light frames, etc., treat the soil around the cable and pole or frame to establish a continuous 6 inch chemical barrier.

A continuous 6 inch chemical barrier must be established around the cable to insure protection from termite attack.

## Utility Poles and Fence Posts

**Preventative Treatment:** Use a 1.0 to 2.0% dilution (See "Rate Determination Guidelines" and "Table 1" for dilution directions). After pole or post hole has been dug, mix the dilution with the soil as it is being replaced to a depth of approximately 10 inches. Place pole or post on top of this layer. The remaining soil fill and termiticide dilution

should be mixed while backfilling the hole. The treated soil zone around the post or pole should be approximately 6 inches wide. Soil for the base layer and backfill of each pole or post should be treated at a rate of 4 gallons of dilution per 10 cubic feet of soil.

**Remedial Treatment:** To control existing infestations or to prevent infestation of posts and poles already in place, use a 1.0% to 2.0% dilution. The termiticide dilution should be injected into termite galleries or channels in the wood. For maximum protection, injection sites should be at or below grade.

Posts or poles may also be treated by rodding down to the base of the structure. Rod holes should be placed approximately 3 inches away from the pole and about 6 inches apart. Inject approximately 12 fluid ounces of dilution per foot of depth into each rod hole.

It may be appropriate to use one or both treatment techniques depending upon the specific circumstances at the work site e.g. soil type.

### Retreatment Statement

Retreatment of subterranean termites may be made any time there is evidence of reinfestation, disruption or loss of the barrier due to construction, excavation, landscaping, etc. Retreatments may be made to vulnerable or reinfested areas in accordance with application techniques described on this label.

Treatments may be made as either a spot or complete treatment. The timing of these retreatments will vary, depending on factors such as termite pressure, soil conditions, etc., which may reduce the effectiveness of the barrier.

Annual retreatments are prohibited unless reinfestation or barrier disruption has occurred.

## Control of Wood Infesting Insects

### Dosage and Mixing Directions

Dursban TC is recommended for use as an aqueous emulsion containing 0.5% to 1.0% chlorpyrifos. See "Table 1" for dilution directions.

### Advisements

When spraying overhead interior living areas of homes, apartment buildings, etc., cover surfaces below the area being sprayed with plastic sheeting or other material.

Contact with treated surfaces should be avoided until spray has dried. Cover or remove exposed foods before treatment. Do not use in structures housing animals which are intended for or which produce products to be used for food purposes. Do not use for above ground control of wood infesting insects in food areas of food handling establishments, restaurants or other areas where food is commercially prepared or processed.

To control wood infesting insects such as powderpost beetles (*Lyctidae*), false powderpost beetles (*Bostrichidae*), deathwatch beetles (*Anobiidae*), old house borers (*Cerambycidae*) and ambrosia beetles (*Scolytidae*) in homes and other structures, treatments may be applied either as coarse sprays or by brushing the product onto targeted surfaces. Use a sufficient amount of spray to cover the area to the point of wetness but avoiding runoff. Use the following guidelines to determine appropriate rates of application:

**New Wood,** (typically less than 10 years of age) apply approximately 1 gallon of dilution per 150 square feet as a coarse spray.

**Old Wood,** (typically greater than 10 years of age) apply approximately 1 gallon of dilution per 100 square feet as a coarse spray.

# Material Safety Data Sheet



## DowElanco DURSBAN\* TC Termiticide Concentrate

Emergency Phone: 517-636-4400  
General Phone: 1-800-352-6776

EPA Reg. Number: 62719-47  
Effective Date: August 12, 1994  
Product Code: 26056  
MSDS Number: 001449  
DowElanco • Indianapolis, IN 46268

### 1. INGREDIENTS:

(% w/w, unless otherwise noted)

O,O-Diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate, (chlorpyrifos) CAS# 002921-88-2 .....	42.8%
Inert ingredients: .....	57.2%
Proprietary emulsifiers	
Xylene range aromatic solvent CAS# 064742-95-2	
Cumene . . . CAS# 000098-82-8	
Xylene . . . CAS# 001330-20-7	
Ethyltoluene . . . CAS# 025550-14-5	
1,2,4-Trimethylbenzene CAS# 000095-63-6	

\*Components of xylene range aromatic solvent

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 2. PHYSICAL DATA:

**BOILING POINT:** 290°F, 143°C  
**VAP. PRESS:** <10 mmHg @ 25°C  
**VAP. DENSITY:** Not determined  
**SOL. IN WATER:** Emulsifiable  
**SP. GRAVITY:** Approx. 1.12 @ 20C/20°C  
**APPEARANCE:** Yellow liquid.  
**ODOR:** Solvent-type odor.

### 3. FIRE AND EXPLOSION HAZARD DATA:

**FLASH POINT:** 122°F, 50°C  
**METHOD USED:** TCC  
**FLAMMABLE LIMITS:**  
LFL: 1%  
UFL: 6% (xylene range aromatic solvent)  
**EXTINGUISHING MEDIA:** Foam, carbon dioxide, and dry chemical.  
**FIRE & EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions. Rapid decomposition above 320-392°F (160-200°C). Violent

rupture of containers due to over-pressurization may occur at temperatures generated during a fire.

**FIRE-FIGHTING EQUIPMENT:** Use positive-pressure, self-contained breathing apparatus and full protective equipment.

### 4. REACTIVITY DATA:

**STABILITY: (CONDITIONS TO AVOID)** Avoid heating above 50°C (122°F). Chlorpyrifos undergoes exothermic decomposition at approximately 130°C (266°F) which can lead to higher temperatures and violent decomposition if generated heat is not removed. Contains petroleum derivative solvent - will burn.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)** None known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Under fire conditions, hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides can be formed.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### 5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

**ACTION TO TAKE FOR SPILLS/LEAKS:** Absorb spills with an absorbent material such as HAZORB, ZORB-BALL, or dirt. Thoroughly wash body areas which come into contact with this product. Contain spill to keep out of sewers. For large spills, consult manufacturer.

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

### 6. HEALTH HAZARD DATA:

**EYE:** May cause moderate eye irritation. May cause slight corneal injury. Effects may be slow to heal. Vapors may irritate eyes.

**SKIN CONTACT:** Short single exposure not likely to cause significant skin irritation. Prolonged or repeated exposure may cause skin irritation. A test in guinea pigs indicated that this product may have weak skin sensitization potential. However, experience in the manufacture and use of this product has not provided

## Treatment Directions

For control of carpenter ants in homes and other structures, apply dilution around doors and windows and other places where carpenter ants enter the premises and where they crawl and hide. Also spray into cracks and crevices or through openings or small newly drilled holes into wall voids where these ants or their nests are present. Use a sufficient amount of coarse spray to cover the area to the point of wetness but avoiding runoff.

For control of termites (localized areas of infested wood in structures), apply dilution to voids and channels in damaged wood and in spaces between members of a structure and between wood and foundations where termite infestation is likely to occur. Application may be made to inaccessible areas by drilling, and then injecting the emulsion. Use a sufficient amount of spray to cover the area to the point of wetness but avoiding runoff. Treatment of localized areas is intended to kill workers and winged reproductive forms of termites in the treated areas and to prevent infestations for a temporary period. This type of application is not intended to be a substitute for soil treatment or mechanical alteration to control subterranean termites.

## Pest Control on Outside Surfaces and Around Buildings

To control ants, bees, carpenter ants, clover mites, cockroaches, crickets, earwigs, hornets, millipedes, scorpions, spiders, ticks, wasps and yellowjackets.

**Outside surfaces:** Apply Dursban TC termiticide as a residual spray to outside surfaces of buildings including porches, window frames, eaves, patios, garages, refuse dumps and other areas where pests congregate or have been observed. Treatment may be repeated as needed to maintain effectiveness.

**Perimeter sprays:** To help prevent infestation of buildings, treat a band of soil and vegetation 6 to 10 feet wide around and adjacent to the building. Also, treat the building foundation to a height of 2 to 3 feet where pests are active and may find entrance. For scorpions, treat or remove accumulations of lumber, firewood, and other materials which serve as insect harborage sites.

**Dosage and Mixing Instructions:** Use Dursban TC mixed as a 0.25% to 0.5% dilution as indicated in the following table:

Gallons of Finished Dilution Desired	Dursban TC Required	
	0.25% Solution	0.5% Solution
1	2/3 fl oz	1 1/3 fl oz
5	3 1/3 fl oz	6 2/3 fl oz
10	6 2/3 fl oz	13 1/3 fl oz
24	16 fl oz	1 qt
48	1 qt	2 qt
97	2 qt	1 gal

Small amounts of solution mixed at 0.5% to 1.0% termiticide rates remaining in the spray tank can be diluted as indicated in the following table and used to treat outside surfaces or perimeter areas:

Concentration of Termiticide Dilution	Amount of Water to Add to Each Gallon of Termiticide Dilution to Provide a 0.25% Spray	Amount of Water to Add to Each Gallon of Termiticide Dilution to Provide a 0.5% Spray
0.5%	1 gallon	none
0.75%	2 gallons	0.5 gallon
1.0%	3 gallons	1 gallon

## Warranty Disclaimer

DowElanco 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. DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

## Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by Buyer.

## Limitation of Remedies

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 DowElanco'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.

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

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

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LABEL CODE 113-52-003  
EPA APPROVAL 04/10/92, 06/15/92, 09/29/92  
REPLACES 113-10-017, 123-10-031, 123-10-035

### Revisions Include:

- 1) Previously approved supplemental labeling entitled "Postconstruction Application Using Foam Generating Equipment" was added to main label.
- 2) Previously approved supplemental labeling entitled "Pest Control on Outside Surfaces and Around Buildings" was added to main label.

# Material Safety Data Sheet



**DowElanco**  
**DURSBAN\* TC**  
**Termiticide Concentrate**

Emergency Phone: 517-636-4400  
General Phone: 1-800-352-6776

EPA Reg. Number: 62719-47  
Effective Date: August 12, 1994  
Product Code: 26056  
MSDS Number: 001449  
DowElanco • Indianapolis, IN 46268

evidence for skin sensitizing properties. Furthermore, the product did not sensitize human subjects when tested at an end-use dilution.

**SKIN ABSORPTION:** A single prolonged exposure may result in the material being absorbed in harmful amounts. The LD50 for skin absorption in rabbits is 1265 mg/kg (males) and 930 mg/kg (females).

**INGESTION:** Single dose oral toxicity is moderate. The oral LD50 for male rats is 226 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing amounts larger than that may cause serious injury, even death. If aspirated (liquid enters the lung), may cause lung damage or even death due to chemical pneumonia.

**INHALATION:** The LC50 for female rats is between 2.6-3.6 mg/l for 4 hours. Excessive exposure may produce organophosphate type cholinesterase inhibition. Excessive exposure to solvent may cause respiratory tract irritation and central nervous system depression. Signs and symptoms of central nervous system depression, in order of increasing exposure, are headache, dizziness, drowsiness, and incoordination.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** Excessive exposure may produce organophosphate-type cholinesterase inhibition. Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Active ingredient produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during use of this product. Solvent has been reported to cause liver, kidney, and blood effects at high exposure levels. Xylene, a minor component of this mixture, is reported to have caused hearing loss in laboratory animals upon inhalation of high concentrations; such effects have not been reported in humans.

**CANCER INFORMATION:** Active ingredient did not cause cancer in long-term animal studies. Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

**TERATOLOGY (BIRTH DEFECTS):** Active ingredient did not cause birth defects in laboratory animals. Solvent was toxic to the fetus in laboratory animal tests, but only at doses that were toxic to the mothers. Very high concentrations of solvent (producing severe toxicity to adult animals) induced an increase in cleft

palate in mice, which is a common developmental abnormality in mice and is associated with stress to the maternal animals. No malformations were induced at exposures less than those causing severe toxicity to the adult animals.

**REPRODUCTIVE EFFECTS:** Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals. In a 3-generation reproduction study on the solvent, the only effects observed were at exposures that produced severe toxicity to the parent animals.

**MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):** Results of in vitro ('test tube') and animal mutagenicity tests on the aromatic solvent have been negative. Based on a majority of negative data and some equivocal or marginally positive results, active ingredient is considered to have minimal mutagenic potential.

## 7. FIRST AID:

**EYES:** Flush eyes with plenty of water for 15 minutes. Get medical attention.

**SKIN:** Immediately wash skin with plenty of soap and water. Get medical attention. Before washing, remove contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

**INGESTION:** Call a physician or poison control center immediately. Do not induce vomiting. Contains an aromatic petroleum solvent. Do not give anything by mouth to an unconscious person.

**INHALATION:** Remove to fresh air if symptoms of cholinesterase inhibition appear and get medical attention immediately.

**NOTE TO PHYSICIAN:** The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient

# Material Safety Data Sheet



## DowElanco DURSBAN\* TC Termiticide Concentrate

Emergency Phone: 517-636-4400  
General Phone: 1-800-352-6771

EPA Reg. Number: 62719-47  
Effective Date: August 12, 1994  
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MSDS Number: 001449  
DowElanco • Indianapolis, IN 46268

### 8. HANDLING PRECAUTIONS:

#### EXPOSURE GUIDELINE:

Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/m<sup>3</sup>, Skin.  
Trimethylbenzene (mesitylene): ACGIH TLV and OSHA PEL are 25 ppm  
Aromatic 100 (xylene range aromatic solvent): none established. Supplier recommends a guideline of 50 ppm for the total product which is a mixture of petroleum hydrocarbons.  
Cumene<sup>1</sup>: ACGIH TLV and OSHA PEL are 50 ppm, Skin.  
Xylene<sup>1</sup>: ACGIH TLV and OSHA PEL are 100ppm TWA, 150ppm STEL.  
Ethyltoluene<sup>1</sup>: Dow Industrial Hygiene Guide is 10 ppm.

**VENTILATION:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator.

**SKIN PROTECTION:** Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse.

**EYE PROTECTION:** Use chemical goggles. If vapor exposure causes eye discomfort, use a full-face respirator.

### 9. ADDITIONAL INFORMATION:

**SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** See label. Keep out of reach of children. Do not swallow. Do not get in eyes or on skin. Avoid breathing mist or vapors. Keep away from heat and open flame. Handle concentrate in ventilated area. Wash thoroughly after handling. Depending on degree of exposure of personnel, consider monitoring blood cholinesterase levels. If in doubt, seek advice from DowElanco. Keep away from food, feedstuffs and domestic water supplies. For health and safety information on end-use dilutions of up to 1% DURSBAN (R) insecticides, see the Health and Safety Fact Sheet, Form No. 311-17-001(2/93), available from DowElanco.

**MSDS STATUS:** Revised section 7.

### REGULATORY INFORMATION:

(Not meant to be all-inclusive—selected regulations represented).

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

**SARA 313 INFORMATION:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
1,2,4-TRIMETHYLBENZENE	000095-63-6	5-
CUMENE	000098-82-8	1-5.
XYLENE (MIXED ISOMERS)	001330-20-7	1-5%

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- An immediate health hazard
- A delayed health hazard
- A fire hazard

#### TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

#### OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

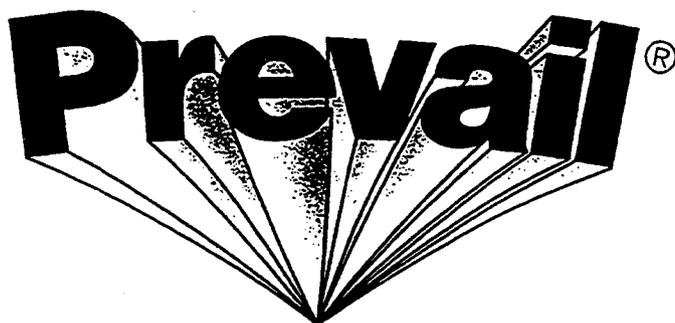
#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category .....	Rating
Health .....	2
Flammability .....	2
Reactivity .....	1

The Information Herein Is Given In Good Faith,  
But No Warranty, Express Or Implied, Is Made.  
Consult The DowElanco Company For Further Information.

Code 1224

Net Contents



# FT Termiticide

Only for Sale to, Use and Storage by Professional Pest Control Operators.

EPA Reg. No. 279-3082

EPA Est. 279-

<b>Active Ingredient:</b>	<b>By Wt.</b>
*Cypermethrin** .....	24.8%
Inert Ingredients .....	75.2%
	<hr/> 100.0%

\* $(\pm)\alpha$ -cyano-(3-phenoxyphenyl)methyl  
 $(\pm)$ -*cis, trans*-3-(2,2-dichloroethenyl)-2,  
 2-dimethylcyclopropanecarboxylate  
 \*\**Cis/trans* ratio: Max. 55% ( $\pm$ ) *cis* and min. 45% ( $\pm$ ) *trans*

Prevail® FT contains 2 pounds cypermethrin per gallon.  
 U.S. Patent No. 4,024,163

**KEEP OUT OF REACH OF CHILDREN**

## CAUTION

See Other Panels for Additional Precautionary Statements.

### STATEMENT OF PRACTICAL TREATMENT

**If inhaled:** Remove to fresh air. If breathing difficulty or discomfort occurs, obtain medical attention.

**If swallowed:** Drink plenty of water and induce vomiting by touching the back of the throat with a finger or blunt object or by giving ipecac. Do not induce vomiting or give anything by mouth to an unconscious person. Call a physician.

**If in Eyes:** Flush eyes with plenty of water. Obtain medical attention if irritation occurs and persists.

**If on Skin:** Wash with soap and water. If irritation occurs and persists, obtain medical attention.

**Note to Physician:** Prevail FT is a pyrethroid insecticide containing the active ingredient cypermethrin. Oral toxicity is low, but because cypermethrin is lipophilic, do not administer milk, cream or other substances containing vegetable or animal fats, which enhance absorption. Treatment is otherwise symptomatic and supportive.

For Emergency Assistance Call (800) 331-3148.



FMC Corporation  
 Agricultural Chemical Group  
 Philadelphia PA 19103

3/95-C

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans (and Domestic Animals)

##### Caution

Harmful if inhaled, swallowed or absorbed through the skin. Causes moderate eye irritation. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes and clothing. The active ingredient may produce sensations (burning, numbing and tingling) in some individuals. Wear impermeable gloves, such as neoprene when spraying. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

#### Environmental Hazards

This product is extremely toxic to fish. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not apply directly to any body of water. Apply this product only as specified on this label. Care should be used when spraying to avoid fish and reptile pets.

#### DIRECTIONS FOR USE

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

#### STORAGE AND DISPOSAL

##### Pesticide Storage

Do not store below 40° F. Keep out of reach of children. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC (800) 331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter, commercial clay or gel absorbents. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

##### Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinse is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

##### Container Disposal

**Metal Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Glass Containers:** Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

**Returnable/Refillable Sealed Containers:** Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

#### General Information on the Use of This Product

The use of this product prevents and controls termite infestations in and around structures and constructions.

The dilute insecticidal emulsion must be adequately dispersed in the soil to establish a barrier between the wood and the termites in the soil. As a good practice: 1) all non-essential wood and cellulose containing materi-

als should be removed from around foundation walls, crawl spaces, and porches; 2) eliminate termite access to moisture by repairing faulty plumbing and/or construction grade. Soil around untreated structural wood in contact with soil should be treated as described below.

To establish an effective insecticidal barrier with this product the service technician must be familiar with current termite control practices such as: trenching, rodding, sub-slab injection, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray applications to infested or susceptible wood. These techniques must be correctly employed to prevent or control infestations by subterranean termites such as: *Coptotermes*, *Heterotermes*, *Reticulitermes* and *Zootermopsis*. The biology and behavior of the species involved should be considered by the service technician in determining which control practices to use to eliminate or prevent the termite infestation.

Choice of appropriate procedures should include consideration of such variable factors as the design of the structure, location of heating, ventilation, and air conditioning (HVAC) systems, water table, soil type, soil compaction, grade conditions, and location and type of domestic water supplies and utilities.

For advice concerning current control practices with relation to specific local conditions, consult resources in structural pest control and state cooperative extension and regulatory agencies.

## SUBTERRANEAN TERMITE CONTROL

**Important:** Contamination of public and private water supplies must be avoided by following these precautions: Use anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies. Do not treat soil beneath structures that contain cisterns or wells. Do not treat soil that is water saturated or frozen. Consult state and local specifications for recommended distances of wells from treated areas, or if such regulations do not exist, refer to Federal Housing Administration Specifications (H.U.D.) for guidance.

**Critical Areas:** Critical areas include areas where the foundation is penetrated by utility services, cracks and expansion joints, bath traps and areas where cement constructions have been poured adjacent to the foundation such as stairs, patios and slab additions.

### Application Rate:

Use a 0.25 % emulsion for subterranean termites.

### Mixing:

For the desired application rate, use the chart below to determine the amount of Prevail® FT for a given volume of finished emulsion:

Amount of Prevail FT (Gallons except where noted)			
Emulsion Concentration	0.25%	0.5%*	1.0%*
Desired Gallons of Finished Emulsion			
1	1.33 oz.	2.67 oz.	5.33 oz.
5	6.67 oz.	13.33 oz.	26.67 oz.
10	13.33 oz.	26.67 oz.	53.3 oz.
24	0.25	0.5	1
48	0.5	1.0	2
97	1.0	2.0	4
194	2.0	4.0	8

Common units of measure:

1 pint = 16 fluid ounces (oz.)

1 gallon = 4 quarts = 8 pints = 128 fluid ounces (oz.)

\*For termite applications, only use these rates in conjunction with the application volume adjustments as listed in the section below.

**Application Volume:** To provide the greatest protection against termite reinfestation for pre-construction applications, it is important to apply as close to labeled volume and rate of finished emulsion as is practical. To ensure thorough and complete coverage in different soil types, it may become necessary to adjust the volume being applied, provided there is a corresponding rate adjustment so that the amount of active ingredient applied to the soil remains the same. In situations such as clay-rich soils which will not accept large amounts of water, reduced volumes of emulsion can be used which will deliver the appropriate concentration of termiticide to the soil. This may also apply to sensitive areas and/or applications where less volume may be desirable.

Where desirable for pre-construction treatments, the volume of the 0.5 % emulsion may be reduced by ½ the labeled volume or a 1.0 % emulsion may be applied at ¼ the labeled volume (see Volume Adjustment Chart). Volume adjustments at 1.0% are not recommended for subslab injection.

**Note:** When volume is reduced, the hole spacing for subslab injection and soil rodding may require similar adjustment to account for lower volume dispersal of the termiticide in the soil.

## Volume Adjustment Chart

Rate (% emulsion)	0.25%	0.5%	1.0%
Volume allowed:			
Horizontal (gallons emulsion/10 ft. <sup>2</sup> )	1.0 gallon	0.5 gallons	0.25 gallons*
Vertical (gallons emulsion/10 lin. ft.)	4.0 gallons	2.0 gallons	1.0 gallons*

\*Not recommended for subslab injection.

## Pre-Construction Subterranean Termite Treatment

**Pre-Construction Treatment:** Pre-construction treatments are defined to include treatments made during all phases of construction up to when the concrete slab is poured.

Effective pre-construction subterranean termite control is achieved by the establishment of vertical and/or horizontal insecticidal barriers using 0.25% emulsion of Prevail® FT. To meet termite proofing requirements, follow the procedures in the latest edition of the Housing and Urban Development Minimum Property Standards (refer to U.S.D.A. Home and Garden Bulletin No. 64).

**Horizontal Barriers:** Create a horizontal barrier wherever treated soil will be covered by concrete, such as footing trenches, slab floors, carports, and the soil beneath stairs and crawl spaces.

To produce a horizontal insecticidal barrier, apply the emulsion at the rate of 1 gallon per 10 square feet to fill soil. If fill is washed gravel or other coarse material, apply at 1.5 gallons of emulsion per 10 square feet so that the emulsion will reach the soil beneath the fill. Applications shall be made by a low pressure spray (less than 50 p.s.i.) using a coarse spray nozzle. If slab will not be poured the same day as treatment, cover treated soil with a water-proof barrier such as polyethylene sheeting. This is not necessary if foundation walls have been installed around the treated soil.

**Vertical Barriers:** Vertical barriers should be established in areas such as around the base of foundations, plumbing, utility entrances, back-filled soil against foundation walls and other critical areas.

To produce a vertical barrier in soil, apply the emulsion at a rate of 4 gallons per 10 linear feet per foot of depth. Distribute the treatment as evenly as possible.

- When rodding or trenching, it is important that emulsion reaches the top of the footing. Rod holes should be spaced to provide a continuous insecticidal barrier.
- Care should be taken to avoid soil wash-out around the footing.
- Trenches need not be wider than 6 inches. Emulsion should be mixed with the soil as it is being replaced in the trench.
- For a monolithic slab, an inside vertical barrier may not be required.

Hollow block voids may be treated at a rate of 2 gallons of emulsion per 10 linear feet so that the emulsion will reach the top of the footing.

## Dealers Should Sell in Original Packages Only.

**Terms of Sale or Use:** On purchase of this product buyer and user agree to the following conditions:

**Warranty:** FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

**Directions and Recommendations:** Follow directions carefully. Timing and method of application, weather and crop conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by the buyer at his own risk.

**Use of Product:** FMC's recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

**Damages:** Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.

Prevail and **FMC**—FMC Trademarks

(1224-1/6/95)

## REVISIONS:

- Single rate for pre-construction termiticide uses.

**MATERIAL SAFETY DATA SHEET**

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EU Directive, 91/155/EU and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

**1. Company and Product Identification**

**FMC CORPORATION**  
Agricultural Chemical Group  
1735 Market Street  
Philadelphia, PA 19103 U.S.A.

**Code Number** : 1224  
**Active Ingredient** : Cypermethrin  
**Chemical Family** : Pyrethroid Insecticide  
**Formula** : C<sub>22</sub>H<sub>19</sub>Cl<sub>2</sub>NO<sub>3</sub> (cypermethrin)  
**Synonyms** : FMC 30980; (±)-α-cyano-(3-phenoxyphenyl)methyl (±)-*cis,trans*-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate; IUPAC: (RS)-α-cyano-3-phenoxybenzyl (1RS)-*cis-trans*-3-(2,2-dichlorovinyl)-1,1-dimethylcyclopropane carboxylate

**EMERGENCY TELEPHONE NUMBERS:**

**CHEMTREC**  
(800)424-9300 (U.S.A. & Canada)  
(202)483-7616 (All Other Countries)

**FMC CORPORATION**  
(800)331-3148 (U.S.A. & Canada)  
(716)735-3765 (All Other Countries-*reverse charges*)

**General Information:** (800)321-1362

**2. Composition/Information on Ingredients**

<b>Ingredient Name</b>	<b>CAS #</b>	<b>EU Number</b>	<b>PEL/TLY</b>	<b>EU Class</b>
Cypermethrin (24.8%)	52315-07-8	None	None	None
Surfactant Blend (<9.6%)	None	None	None	None
Phenylsulfonate (<1.7%)	70528-83-5	None	None	None
Isobutanol (<0.7%)	78-83-1	None	50 ppm (supplier)	None

**3. Hazards Identification****Emergency Overview:**

- Amber liquid with a soapy odor.
- Slightly combustible. May support combustion at elevated temperatures.
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Highly toxic to fish and aquatic organisms. Keep out of drains and water courses.
- Expected to be moderately irritating to the eyes and skin.

**Potential Health Effects:** Effects from overexposure result from either inhaling or coming into contact with the skin or eyes. Symptoms of overexposure include decreased activity, tremors, convulsions, loss of bladder control, incoordination, and increased sensitivity to sound. Contact with cypermethrin may produce skin sensations such as numbing, burning and tingling. These skin sensations are reversible and usually subside within 12 hours.

**Medical Conditions Aggravated by Exposure:** None presently known.

#### 4. First Aid Measures

- Eyes** : Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.
- Skin** : Remove contaminated clothing and thoroughly wash with soap and water. If irritation occurs and persists contact a medical doctor.
- Inhalation** : Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.
- Ingestion** : Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

**Note to Medical Doctor** : Prevail FT has low oral, dermal and inhalation toxicity, and is expected to be moderately irritating to the eyes and skin. It contains cypermethrin, a pyrethroid insecticide. Do not administer milk, cream or other substances which contain vegetable or animal fats, as they enhance absorption of cypermethrin. Central nervous system stimulation can be controlled with sedation, e.g., barbiturates. The formulation contains phenylsulfonate, a corrosive material. Consideration should be given to gastric lavage with an endotracheal tube in place. Treatment is otherwise controlled removal from exposure followed by symptomatic and supportive care. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort.

#### 5. Fire Fighting Measures

**Flash Point** : 115°C (240°F)

**Extinguishing Media** : Foam, CO<sub>2</sub> or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

**Degree of Fire/Explosion Hazard** : Slightly combustible. May support combustion at elevated temperatures.

**Special Fire Fighting Procedures** : Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapor generated.

**Hazardous Decomposition Products** : Upon burning, carbon monoxide, carbon dioxide, hydrogen cyanide, chlorine and hydrogen chloride may be produced.

#### 6. Accidental Release Measures

Isolate and post spill area. Wear protective clothing and respiratory protection as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep pesticides out of lakes, streams, ponds and sewer drains. Dike to confine spill and absorb with an absorbent such as clay, sand or soil. Vacuum, shovel or pump pesticides into a drum and label contents.

To clean and neutralize spill area, tools and equipment, wash with a suitable solution of caustic/soda ash and an appropriate alcohol (methanol, ethanol or isopropanol). Follow this by washing with a strong soap and water solution.

Absorb, as above, any excess liquid and add to the drums of waste already collected. Repeat if necessary. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

#### 7. Handling and Storage

Store in a cool, dry, well-ventilated place. Do not use or store near heat, open flame or hot surfaces. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

#### 8. Exposure Controls/Personal Protection

Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated below provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

**Ventilation** : Use local exhaust at all process locations where vapor or mist may be emitted. Ventilate all transport vehicles prior to unloading.

**Work Clothing** : Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a rubber rain suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

**Eye Protection** : For splash, spray or mist exposure, wear chemical protective goggles or a face shield.

**Respiratory Prot.** : For splash, spray or mist exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.



**12. Environmental Information (cont'd)****Environmental Toxicology :**

Cypermethrin is considered highly toxic to fish and aquatic arthropods, and has LC50 values which range from 0.004 µg/L to 3.6 µg/L. The aquatic arthropods tended to be some of the more sensitive species. Care should be taken to avoid contamination of the aquatic environment. Cypermethrin is slightly toxic to birds and oral LD50 values are greater than 10,248 mg/kg.

**13. Disposal Considerations**

Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location, and because regulatory requirements may change, contact the appropriate regulatory authority prior to disposal.

Non-returnable containers which held these materials should be cleaned, prior to disposal, by triple-rinsing. Containers which held this material may be cleaned by being triple-rinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

**14. Transportation Information**

**For road, rail and air:** Insecticides, NOI, other than Poison.

**For water:** Environmentally hazardous substance, liquid, n.o.s., 9, UN3082, III.

**MARPOL Designation:** Severe Marine Pollutant (cypermethrin 24.8%) **Reportable Quantity:** Not listed.

Insecticide, NOI, other than Poison. NMFC Item 102102. Prevail® FT

**15. Regulatory Information**

Australian Hazard Code : 3XE

U.S. CERCLA Reportable Quantity (RQ) : This product contains the following ingredients listed in 40 CFR Table 302.4:

	Percentage by weight	Final RQ (lb.)
isobutyl alcohol	0.7	5,000

U.S. EPA Category & Signal Word : CAUTION

**U.S. SARA Title III**

Section 302 Extremely Hazardous Substances (40 CFR 355): Not Listed

Section 302.4 Reportable Quantity (RQ) (40 CFR 355): Not Listed

Section 311 Hazard Categories (40 CFR 370): Immediate, Delayed

Section 312 Threshold Planning Quantity (40 CFR 370): The threshold planning quantity (TPQ) for this product, if treated as a mixture, is 10,000 lb. This product contains the following ingredients with a TPQ of less than 10,000 lb.: None.

Section 313 (40 CFR 372) : There are no ingredients in this product which are subject to Section 313 reporting requirements.



## Product Safety Information Sheet

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### Product

Prevail<sup>®</sup> FT Termiticide up to a 0.6% emulsion (0.3% to 0.6%) diluted in water

### Manufacturer

FMC Corporation, P.O. Box 8, Princeton, NJ 08543

### Emergency Phone #

1-800-331-3148

### Technical Information Phone #

1-800-321-1FMC

### Ingredients

	CAS #
Cypermethrin ( 24.8%)	52315-07-8
Surfactant Blend ( < 9.6%)	None
Phenylsulfonate ( < 1.7%)	70528-83-5
Isobutanol ( < 0.7%)	78-83-1

### Fire and Explosion Hazard Information

The water-based emulsion of Prevail FT Termiticide is not explosive or flammable.

### Health Hazard Information

Prevail FT, as a concentrate, is labeled "Caution" for all EPA required acute toxicity testing. Keep out of the reach of children. Harmful if swallowed, inhaled or absorbed through the skin. Exposure to Prevail FT during mixing or to diluted spray during application may cause skin sensations such as burning, numbness or tingling. These sensations generally occur in the area of the body contacted and last for a few hours. This reaction, should it occur, produces some discomfort but does not result in skin damage. Note First Aid Section should direct exposure occur.

	Acute Mammalian Toxicity	
	Concentrate	Emulsion
Acute Oral	1,085 mg/kg	>20,000 mg/kg
Acute Dermal	>2,000 mg/kg	>10,000 mg/kg
Acute Inhalation	1.7 mg/L	> 4.37 mg/L

Acute toxicities are determined by feeding or applying the termiticide to experimental animals. Results of toxicity testing are expressed in terms of the weight of the termiticide (in milligrams) compared to the weight of the test animals (in kilograms). The term LD<sub>50</sub> indicates the approximate amount of termiticide per weight of the test animals which is lethal to half of the test animals. The larger the LD<sub>50</sub> value, the less toxic is the termiticide.

## **First Aid Procedures (for 0.6% emulsion)**

### **Eye**

Flush eyes with plenty of water. Obtain medical attention if irritation occurs and persists.

### **Skin**

Wash skin with plenty of soap and water. If irritation occurs and persists, call a physician.

### **Inhalation**

Remove to fresh air. If breathing difficulty or discomfort occurs, obtain medical attention.

### **Ingestion**

Drink 1 or 2 glasses of water. Do not induce vomiting. Do not administer milk, cream, etc. Do not give anything by mouth to an unconscious person. Call a physician or Poison Control Center.

### **Note to Physician**

Prevail FT emulsion contains a low concentrate of the pyrethroid termiticide cypermethrin and primarily water. Reversible skin sensations may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

## **Environmental and Disposal Information**

### **Spill Control and Cleanup**

Isolate and post spill area. Long-sleeved uniform or coveralls should be worn, and pesticide protective gloves such as nitrile butyl rubber should be worn. Keep out animals and unprotected persons. Keep emulsion out of streams and sewers. Dike to confine spills, and absorb with an absorbent such as clay, sand or cat litter. Place in a DOT approved drum and contact appropriate regulatory agencies prior to disposal. To decontaminate spill area, tools and equipment, wash with a detergent/water mixture and properly dispose of solution as contaminated waste.

### **Environmental Hazards**

This product is extremely toxic to fish. Do not contaminate water when disposing of equipment wash waters. Do not apply directly to any body of water. Care should be used when spraying to avoid fish and reptiles.

### **Occupational Exposure Limits**

Neither OSHA, ACHIH nor other government agencies have established limits for the active ingredient in air or water.

### **Regulatory Status**

Prevail FT Termiticide is registered by authority of the U.S. Environmental Protection Agency and the Federal Insecticide, Fungicide and Rodenticide Act.

# Specimen Label



# Recruit<sup>®</sup> II

## Termite Bait

*\*Trademark of DowElanco*

**A termite bait for use in an integrated management system for protection of structures from subterranean termites.**

Active Ingredient:	
hexaflumuron: N(((3,5-dichloro-4-(1,1,2,2-tetrafluoroethoxy)phenyl)amino)carbonyl)-2,6-difluorobenzamide .....	0.5%
Inert ingredients .....	99.5%
Total Ingredients .....	100.0%

Contains 0.5 grams of hexaflumuron per 100 grams of formulation.

U.S. Patent No. 4,468,405

EPA Reg. No. 62719-272

### Precautionary Statements

#### Hazards to Humans and Domestic Animals

**Keep Out of Reach of Children**

## CAUTION

Do not tamper with bait material.

#### Environmental Hazards

This product is highly toxic to aquatic invertebrates and possibly to fish. Do not use Baitube<sup>®</sup> devices in depressions, low areas, near ponds, streams, springs, other water sources, or near downspout openings when the bait or its hexaflumuron contents could be washed out of the Baitube into water at or near the surface of the ground.

**Notice:** Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" elsewhere on this label.

In case of emergency endangering health or the environment involving this product, call collect 517-636-4400.

### Directions for Use

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

Read all Directions for Use carefully before applying.

### Storage and Disposal

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

**Storage:** Store in original container in a dry storage area.

**Disposal:** Store used Baitube devices that are damaged or no longer needed until they can be sent to an approved facility as instructed by DowElanco for disposal or recycling.

### Handling Procedures

Do not break open or cut into the Baitube. Do not remove protective wrapper from the Baitube until ready for use.

### General Information

Recruit<sup>®</sup> II termite bait contains an insect growth regulator (IGR), hexaflumuron, that prevents successful molting and development of subterranean termites. This disruption of development ultimately results in the decline of the termite colony to the point where the colony can no longer sustain itself and is eliminated.

Recruit II was developed to be used in the Sentricon<sup>®</sup> System which represents an integrated pest management approach for the elimination of subterranean termite colonies, including *Coptotermes*, *Reticulitermes*, and *Heterotermes* spp. and is intended to form the basis of an on-going program providing structural protection from subterranean termites. Use of this management system involves three basic steps: (1) monitoring for the presence of termite activity in and around the target site; (2) delivery of a slow acting insect growth regulator, Recruit II, when the presence of subterranean termites has been detected; and (3) continued inspection and monitoring of the site for the presence of termite activity after elimination of the colony has been achieved. Although the third phase of the management system is an optional service offered to the owner of the structure, it provides an on-going preventive service in order to detect any new termite activity.

When termite activity is detected and feeding of Recruit II termite bait is established, Baitube devices must remain in the station as long as the bait material is being consumed and termites remain active. When evidence of termite activity in the Baitube ceases, resume monitoring to detect the presence of renewed termite activity by substituting a monitoring device for the Baitube if the termite control program is on-going.

Do not re-use Baitube devices or Recruit II termite bait. Subterranean termites excrete colony specific pheromones that become incorporated into the bait while feeding and foraging. The pheromones left in the bait by one colony will cause feeding deterrence or repellency to other colonies, causing it to be ineffective.

It is important for operators to understand the biology and behavior of subterranean termite species, and construction and landscape features conducive to infestation by subterranean termites.

### Use Directions

Target sites for this system can include buildings, fences, utility poles, decking, landscape plantings and trees or other features which could be damaged by termite feeding and foraging activity. Recruit II can be used on the inside or outside of foundation walls of crawl space areas or through concrete and asphalt if adequate soil is not accessible and such action is warranted.

#### Monitoring

The purpose of the monitoring phase is to detect the presence of subterranean termites. This procedure does not attract termites from other locations. When present, termites can be collected from monitoring devices placed in the Sentricon stations. Upon collection, these termites can be placed inside the Baitube containing Recruit II to force tunneling through the bait material. This facilitates their return to the colony for "recruiting" other nestmates to feed on Recruit II. This Self-Recruitment procedure further encourages the subterranean termite population to forage into and feed on Recruit II termite bait.

Identify critical areas suitable for placing Sentricon stations. Critical areas include locations within or adjacent to visible termite activity such as indicated by: foraging tubes, termite infested plants, wood, and other materials; and areas conducive to termite foraging (bath traps, moist soil in shaded areas, near irrigation sprinkler heads, roof down spouts and other moist areas, and near planting beds or other areas with plant root systems). Sentricon stations should be placed within 4 feet of critical areas unless placement is obstructed. Sentricon stations should not be placed in soil within 18 inches of structural foundations previously treated with a liquid termiticide. In addition to select critical areas, install Sentricon stations around the target site at intervals which do not exceed 20 feet where soil access is not restricted.

Inspect monitoring devices monthly for the first three months after installation at a site when termites are known to be active. If no termite activity at a site is documented, then monitoring can be done on a bi-monthly or quarterly basis.

When termite activity is observed in a monitoring device, and worker numbers are sufficient for Self-Recruitment (about 40 termites) then Baitube devices containing Recruit II and auxiliary Sentricon station(s) shall be installed per directions in section 2 of this label and monitoring resumed on at least a monthly basis. Continue monitoring for as long as there is evidence of termite activity in any Sentricon station at the site. If more than 75% of the Baitube device contents are consumed in one or more stations, stations should be inspected more frequently than monthly. Once active termites are no longer found in any Baitube, or Recruit II is no longer being consumed for two consecutive monitoring periods, replace the Baitube with a monitoring device and resume monitoring on a Bi-monthly or quarterly basis if the control program is continuing. If auxiliary Sentricon stations have been installed they may be removed leaving the original Sentricon station in place.

Note: Unfavorable conditions such as excessive moisture or freezing of soil may temporarily disrupt feeding on Recruit II and monitoring devices. Resume monitoring after return of conditions favorable to termite activity.

#### Installation of the Baitube containing Recruit II

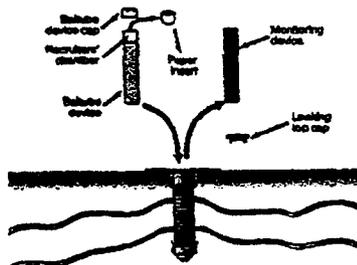
The monitoring device should be replaced with a Baitube containing Recruit II when termites are present in the monitoring device in numbers sufficient for Self-Recruitment (about 40 or more worker termites). Proper use of the Baitube containing Recruit II termite bait will maximize the "recruitment" of nestmates and expose a larger number of termites from a target colony to the IGR containing material. The Self-Recruitment procedure is accomplished by transferring termites collected from the monitoring device to the Self-Recruitment chamber at the top of the Baitube according to the following procedure:

**Self-Recruitment Procedure:** Remove termites from the monitoring device and introduce them into the Self-Recruitment chamber in the top of the Baitube as follows (refer to Figure 1).

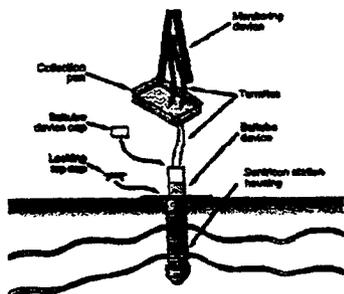
1. Prepare the Baitube for introduction of termites as follows:
  - (1) Remove the cap.
  - (2) Add a minimum of 0.7 ounces (approx. 20 ml) of water to the Self-Recruitment chamber. In arid areas and in dry soils, add up to up to 2.7 ounces (approx. 80 ml) of water before introducing termites to the chamber. This moisture is necessary for termites to survive the Self-Recruitment procedure. Allow the water to be completely absorbed by the bait before transferring termites to the chamber.
2. Transfer termites from the infested monitoring device to the Self-Recruitment chamber of the Baitube as follows:
  - (1) Remove monitoring device from the Sentricon station and place in a container suitable for collecting termites and associated debris that will be introduced into the Self-Recruitment chamber. A shallow pan works well for this purpose, or, with experience, users may fashion other devices more suitable for this purpose.
  - (2) Carefully remove termites, debris, soil and mud tube material from the surface of the monitoring device. Save this material to add to the Self-Recruitment chamber along with termites.
  - (3) Separate the halves of the monitoring device and gently tap them to dislodge as many termites as possible into the collecting pan.
  - (4) Introduce the termites and debris collected into the Self-Recruitment chamber of the Baitube. Excess debris and termites may be discarded or used to initiate the Self-Recruitment process in an auxiliary Sentricon station placed adjacent to the primary baited station (see Installation of Auxiliary Stations).
  - (5) Replace the cap of the Baitube. Avoid harming termites placed in the chamber when replacing the cap. If the chamber is overfilled, wait for excess termites to move out of the way to avoid injuring them since dead termites may repel nestmates from feeding at the bait station.
3. Remove the plastic covering of the Baitube at the perforations to expose the termite access holes before inserting into the Sentricon station.
4. Complete the Self-Recruitment procedure by inserting the capped Baitube into the Sentricon station and replacing the outer cap of the station.

Figure 1. (Refer to Self-Recruitment Procedure section)

1a. When termites are present during an inspection of the monitoring device in numbers sufficient for Self-Recruitment (about 40 worker termites), remove the monitoring device and replace it with a Baitube containing Recruit II.



1b. Remove termites from the monitoring device into the collecting pan and introduce them into the top of the Baitube.



2. **Installation of Auxiliary Stations:** A Sentricon station is considered to be free-standing if it is more than 12 inches from another Sentricon station. When a free-standing station is baited with Recruit II, install one or more auxiliary Sentricon stations containing monitoring devices within 12 inches of the baited station, if suitable ground access exists. Auxiliary Sentricon stations can be baited immediately if adequate numbers of termites can be collected to initiate the Self-Recruitment process. When auxiliary stations are baited at a subsequent inspection, continue to install auxiliary Sentricon stations as necessary. Installation of auxiliary Sentricon stations creates a cluster of two or more Sentricon stations in which each station is located 12 inches or less from adjacent station(s). Assume that one or more Sentricon stations per cluster contain monitoring devices.

3. **Inspection of the Baitube:** Baitube devices are inspected by visually examining the device for termites. If termites are active in the Baitube and the material is nearly or totally consumed (or if the material appears to be degraded or moldy), replace it with another Baitube containing Recruit II. If possible, gently tap the termites from the used Baitube device into the replacement device using the Self-Recruitment procedure described above. It is not desirable to have the entire contents of the Baitube consumed before replacing it, as termites may forage elsewhere in search of food. Inspect adjacent monitoring device locations and initiate placement of Baitube devices in Sentricon stations when and where termites are found in monitoring devices.

**Warranty Disclaimer**

DowElanco 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. DowElanco MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

**Inherent Risks of Use**

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by buyer.

**Limitation of Remedies**

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 DowElanco'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

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

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

\*Trademark of DowElanco  
DowElanco •Indianapolis, IN 46268 U.S.A.

Label Code: 113-49-014-0  
Replaces Label: 113-49-004-0

EPA-Accepted 04-07-97

**Revisions:**

Changes requested by EPA as conditions of acceptance:

1. Use Directions
  - Added U.S. units of measure before metric units to Self-Recruitment Procedure
  - Added reference of Recruit II to baiting statement of Installation of Auxiliary Stations
2. Limitation of Remedies
  - Deleted item 2 "or" from item 2

**APPENDIX E**  
**WESTERN AREA POWER ADMINISTRATION**  
**BUILDING CONSTRUCTION SPECIFICATION**

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**TERMITE CONTROL:**

a. GENERAL: Provide soil treatment for subterranean insects at interior and exterior foundation perimeter and below slabs-on-grade.

b. QUALITY ASSURANCE:

(1) General: Conform to EPA's Federal Insecticide, Fungicide, and Rodenticide Act. Conform to State and local requirements for application, licensing, and authority to use termiticides. Follow State and local regulations to meet minimum treatment standards for preventive preconstruction and during construction treatments (horizontal and vertical chemical barriers).

(2) Applicator: At least 5 years documented experience in soil treatment for termite control. The service technician must be familiar with current termite control practices such as: trenching, rodding, sub-slab injection, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray application of infested or susceptible wood. Required to be licensed in the State in which termiticides will be applied.

c. SUBMITTALS: In accordance with the "Submittals" paragraph.

(1) Product and Installation Data: Indicate termiticides to be used [EPA registration number and product lot number from the label(s)], composition by percentage, dilution schedule, application rate (emulsion concentration), and manufacturer's application instructions.

(2) Termiticide Applicator's Certification/License: Applicator's certification/license number for the State in which termiticides will be applied.

(3) Test Reports: Accurately record moisture content of soil before treatment, date and rate of application, locations of applications, and diary of meter readings and corresponding coverage.

(4) Project Record Documents: As-built drawings showing locations of application.

d. OPERATION AND MAINTENANCE DATA: Provide a 5-year warranty for material and installation. Cover against invasion or propagation of subterranean termites, damage to building or building contents caused by termites, and cover repairs to building or building contents so caused.

e. MATERIAL: Termiticide, water based emulsion of uniform composition with synthetic dye to permit visual identification of treated soil;

**Instructions to Specifier: Choose between the following termiticides based on location (climatic and ambient temperature conditions):**

chlorpyrifos (Dursban TC, Equity); permethrin (Dragnet FT, Torpedo); cypermethrin (Prevail FT, Demon TC); fenvalerate (Tribute); and bifenthrin (Biflex TC). Refer to the following two tables.

The data in the tables indicate that when length of control for all locations are averaged together, chlorpyrifos lasts longer than the other active ingredients. However, in the high temperatures of the southwestern deserts, permethrin had the longest record of control for both concrete slab and ground board tests.

**TABLE 1**  
**TERMITICIDE LONGEVITY - SLAB TESTS**

Trade Name	Termiticide at Common Use Rate	Location and Years of 100% Control						
		FL	MS	MS	AZ	SC	MD	AVG.
Dursban TC	1.0% Chlorpyrifos ( <i>DowElanco</i> )	9	11	21	6	12	17	11.7
Dragnet FT	0.5% Permethrin ( <i>FMC</i> )	4	5	--	13	5	--	6.8
Torpedo	0.5% Permethrin ( <i>Zeneca</i> )	6	4	--	11	1	--	5.5
Prevail FT*	0.25% Cypermethrin ( <i>FMC</i> )	9	3	--	4	4	--	5.0
Tribute	0.5% Fenvalerate ( <i>Roussel Uclaf</i> )	3	7	--	12	4	--	6.5

Adapted from: Dow Elanco 1993.

\* Prevail FT is labeled for pretreatment only.

Pre-constructed treatments are defined to include treatments made during all phases of construction up to when the concrete slab was poured.

**TABLE 2**  
**TERMITICIDE LONGEVITY - GROUNDBOARD TESTS**

Trade Name	Termiticide at	Location and Years of 100% Control					
		FL	MS	AZ	SC	MD	AVG.
Dursban TC	1.0% Chlorpyrifos ( <i>DowElanco</i> )	7	4	2	8	18	9.8
Dragnet FT	61.0% Permethrin ( <i>FMC</i> )	6	2	9	1	--	4.5
Torpedo	1.0% Permethrin ( <i>Zeneca</i> )	5	2	8	1	--	4.0
Prevail FT*	1.0% Cypermethrin ( <i>FMC</i> )	5	5	5	5	--	5.0
Tribute	1.0% Fenvalerate ( <i>Roussel Uclaf</i> )	4	4	7	6	--	5.3
Demon TC	1.0% Cypermethrin ( <i>Zeneca</i> )	5	5	5	5	--	5.0

Adapted from: Dow Elanco 1993.

\* Prevail FT is labeled for pretreatment only.

**APPENDIX F**  
**SPECIMEN LABELS - WOOD PRESERVATIVES**

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# IMPEL<sup>®</sup>

## RODS

### Wood Utility Poles

#### Wood Decay In Poles

All Utilities face the costly replacement of decay-damaged wood poles that fall below the strength requirements of the National Electrical Safety Code. Other poles must be replaced due to insect or mechanical damage.

Supplemental pole treatments have proved to be effective in extending the service life and reducing expensive replacements of wood poles. Most utilities have recognized the need for an ongoing pole inspection and maintenance program. And no wonder! Preventive and remedial treatments offer substantial economic benefits, wood resource conservation, reduced owner liability, and a safer pole plant.

This IMPEL<sup>®</sup> Rod bulletin explains how decay-damaging conditions occur, and how to spot, prevent and treat them... often before expensive pole replacement is required.

Wood poles are exposed to severe environments, and although pressure-treated, decay and insects can still find their way into unprotected areas, above and below the ground. Seasoning checks above ground can expose unprotected heartwood and vulnerable sapwood where original treatment was inhibited by insufficient drying of the wood. And field drilling by utility, telephone, and cable personnel can also allow fungus spores to reach the unprotected interior of poles.

The most critical area for decay to occur, however, is the groundline zone. From about 6 inches above the ground to about 18 inches below, conditions are ideal for decay and insect attack. Decay needs adequate moisture, food, oxygen, and temperature in order to thrive and destroy wood. Once decay has begun, it offers a natural environment for many wood-destroying insects.

#### The IMPEL Rods System

IMPEL Rods are a safe, low-cost, EPA-approved decay protection and prevention system for wood poles. They have an appearance similar to glass rods and are available in two convenient sizes for wood pole protection.

IMPEL Rods are molded from fused, water-diffusible borates, which are highly effective and well established wood preservatives. They are internationally recognized as effective in controlling fungal decay, termites, carpenter ants, various beetles, and many other wood-boring insects. Borates are "user friendly" and more environmentally acceptable than toxic alternatives, such as fumigants. They are highly toxic to fungal decay and to many insects at concentrations that are not poisonous to humans or other mammals.

IMPEL Rods are placed into holes drilled into the wood at critical locations where control of decay is required. The rods depend on moisture to distribute the desired loadings throughout the target area. For remedial treatments of existing decay, 6 oz. of Boric Acid Equivalent (BAE) per cubic foot of wood is recommended. For preventive treatments, 2 oz. BAE/cf is sufficient.

As the wood's moisture content rises to 25 - 30% (the same levels where decay begins to thrive), IMPEL Rods begin to diffuse. IMPEL's strong preservative is distributed throughout both heartwood and sapwood by moisture as it naturally spreads through the wood. At recommended levels, IMPEL Rods will control existing decay and prevent its future growth.

#### GROUNDLINE APPLICATIONS

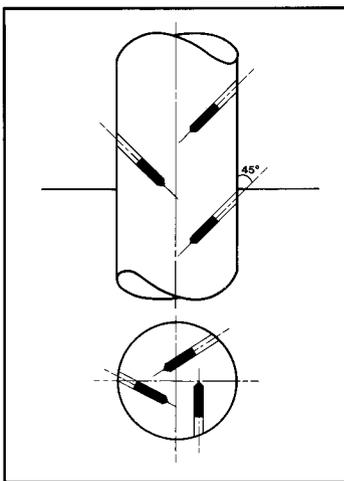


DIAGRAM 1

#### ABOVE-GROUND APPLICATIONS

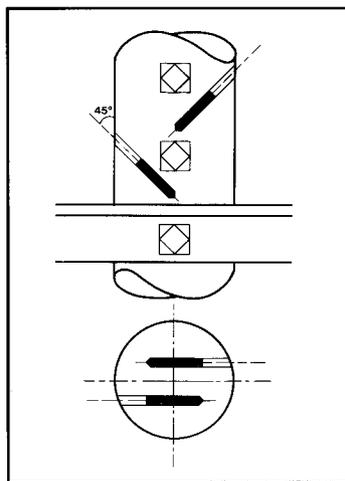


DIAGRAM 2

Inspection and maintenance crews or utility personnel can easily and safely apply IMPEL Rods. And since borates are not "restricted use" pesticides, no special licensing or certification is required for applicators in most states. IMPEL Rods can even be used in residential areas where other highly toxic alternatives may be restricted.

### Three Easy Steps

Protection of wood poles with IMPEL Rods can be accomplished by following three easy steps for rod installation:

- 1) Drill appropriate sized holes to accommodate the predetermined number of IMPEL Rods required;
- 2) Insert the suitable size and number of IMPEL Rods into the holes; and
- 3) Seal the holes with a treated wooden dowel.

The recommended drilling patterns for positioning of IMPEL Rods for groundline and above-ground applications are

illustrated in Diagrams 1 and 2. For groundline applications, IMPEL Rods are generally inserted through a series of 3 or 4 holes drilled in a spiral pattern and angled down at about 45 degrees (see Diagram 1). For smaller poles, two holes may be appropriate for adequate loadings. This pattern offers a convenient system that requires no costly groundline excavation. Other drilling patterns can be used as long as they distribute the rods throughout the critical decay zone, ranging from 18" below to 6" above groundline.

### IMPEL Rod's Applications & Uses

IMPEL Rods are intended for the internal treatment of wood poles in both above ground and groundline application. They are ideal for both preventive and remedial treatments of standing poles. Even new poles benefit when IMPEL Rods are applied prior to installation.

Where above-ground moisture contents are sufficient for diffusion. IMPEL Rods will eradicate existing decay and prevent

future growth. IMPEL Rods inserted above field-drilled bolt holes will protect the areas exposed to fungi during drilling. When decay pockets are detected, IMPEL Rods can be inserted into holes drilled into the wood at the edge of the pocket to provide a convenient, easy remedy.

Recommended quantities of IMPEL Rods for groundline treatments for various pole sizes can be found in Table 1. If not listed, use the amount of the most appropriate size rods necessary to obtain the desired retention [i.e. — 6 oz. BAE (remedial) or 2 oz. BAE (preventive) per cubic foot of wood].

### The Durability Of IMPEL Rods

IMPEL Rods will significantly extend the service life of standing poles. IMPEL's solid, highly concentrated form of boron offers a system that outperforms many liquid water soluble preservatives, which tend to rapidly leach from wood in high-exposure applications. The advantage of IMPEL Rods is that they dissolve

**TABLE 1**

**RECOMMENDED NUMBER OF IMPEL RODS PER SIZE FOR GROUNDLINE\* TREATMENTS**

POLE DIAMETER @ GROUNDLINE (INCHES)	POLE CIRCUMFERENCE @ GROUNDLINE (INCHES)	VOLUME (CU. FT.)	REMEDIAL TREATMENTS (6 OZ. BAE/CF)		PREVENTIVE TREATMENTS (2 OZ. BAE/CF)	
			1/2" X 4" RODS (1.23 oz. BAE/rod) (Stock # 12400)	3/4" X 3" RODS (2.03 oz. BAE/rod) (Stock # 34300)	1/2" X 4" RODS (1.23 oz. BAE/rod) (Stock # 12400)	3/4" X 3" RODS (2.03 oz. BAE/rod) (Stock # 34300)
8	25 – 27	0.70	4	3	2	2
9	28 – 30	0.88	5	4	2	2
10	31 – 34	1.09	6	4	2	2
11	35 – 37	1.32	7	4	3	2
12	38 – 40	1.57	8	5	3	2
13	41 – 43	1.84	9	6	3	2
14	44 – 46	2.14	11	7	4	3
15	47 – 49	2.45	12	8	4	3
16	50 – 52	2.79	14	9	5	3
17	53 – 56	3.15	16	10	6	4
18	57 – 59	3.53	18	11	6	4
19	60 – 62	3.94	20	12	7	4
20	63 – 65	4.36	NR	13	8	5
21	66 – 68	4.81	NR	15	8	5
22	69 – 71	5.28	NR	16	9	6
23	72 – 74	5.77	NR	18	10	6
24	75 – 78	6.28	NR	19	11	7

\* GROUNDLINE ZONE = THE 24" ZONE FROM 6" ABOVE GROUND TO 18" BELOW

NOTE: A MINIMUM OF 2 RODS IS RECOMMENDED EVEN ON SMALLER POLES FOR ADEQUATE PRESERVATIVE DISTRIBUTION.

NR = NOT RECOMMENDED

very slowly over time.

In creosote and penta treated poles, the oil saturated sapwood shell provides a very effective moisture barrier that limits boron loss from internally positioned IMPEL Rods. In the 7th year of testing, creosoted poles in England had retained excellent boron distribution from IMPEL Rods groundline treatment. There was no reason to suspect significant boron depletion for years to come.

### Safety Aspects

Borates are recognized as being one of the safest known chemical groups available for wood preservation today. And due to their low toxicity and high effectiveness, borates are fast becoming the preservative of choice over highly toxic alternatives in certain applications. In addition, the unique feature of IMPEL Rods offers a borate preservative which cannot be spilled or splashed onto susceptible skin or the environment.

Table 2 illustrates the low toxicity of IMPEL Rods when compared to two highly toxic supplemental pole treatment preservatives. The comparison is based

on the standard LD50 (Lethal Dosage) toxicity rating and shows that IMPEL Rods have about one tenth of the mammalian toxicity of the two more toxic alternatives.

For detailed safety and handling information, see the IMPEL Rods Material Safety Data Sheet and product label.

### Ordering IMPEL Rods

IMPEL Rods are available through authorized dealers of PoleCare, a division of CSI. For the dealer nearest you, contact PoleCare directly by writing to PoleCare, a division of CSI, PO Box 610, Harrisburg, NC 28075, or by calling toll-free 1-800-801-0078.

Shipments will be made by UPS or other suitable carrier. State taxes may apply.

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- BORAX CONSOLIDATED LIMITED (1977) TIMBER. BCL Technical data Sheet T-1.  
 CARTWRIGHT, K.ST.G. and FINDLAY W.P.K. (1958) Decay of Timber and its Prevention. HH.M.S.O. London.(2ndEd.)  
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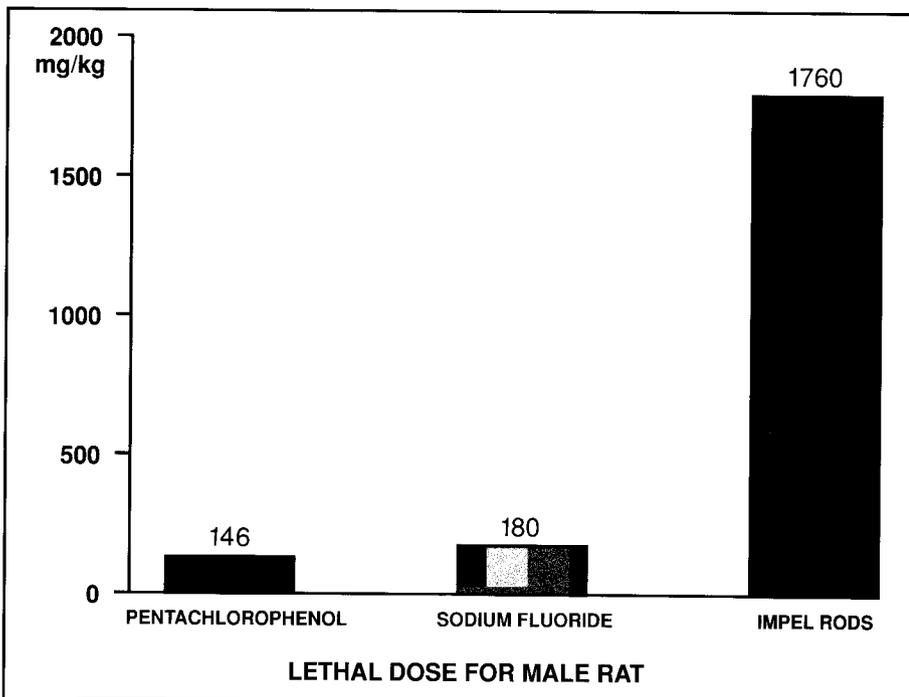
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FRIIS-HANSEN, HENNING (1987) A Suggestion for the Improvement of the Chemical Protection of Wooden Poles. The International Research Group on Wood Preservation. Doc. No.: IRG/WP/3445.

HENNINGSSON, B., FRIIS-HANSEN, H., KAARIK., A. and EDLUND, M.L. (1989) The Effect of Remedial Treatment of Poles. International Conference on Wood Poles and Piles.

**TABLE 2**  
**IMPEL RODS HAVE LOW TOXICITY**  
**LD50 COMPARISON**



### IMPEL RODS: TECHNICAL INFORMATION

#### Chemical And Physical Data

Active: 100% Anhydrous Disodium Octaborate ( $\text{Na}_2\text{B}_8\text{O}_{13}$ )  
 Equivalents: 18% Sodium Oxide ( $\text{Na}_2\text{O}$ ); 82% Boric Oxide ( $\text{B}_2\text{O}_3$ )  
 Specific Gravity: 2.2g/cc @ 20° C  
 Appearance: Cylindrical, glass-like rods; colorless to opaque

Odor: None

Melting Point: >1000° C

Solubility in  $\text{H}_2\text{O}$ : 100% by weight

#### Fire And Explosion Data

None. IMPEL Rods do not alter combustibility or ignition point of wood

Flashpoint: None

#### Health Hazard Data

Skin Contact: May be slightly irritating; reversible

Eye Contact: May be slightly irritating; reversible

Ingestion: Nausea, vomiting

LD50: Oral - 1760 mg/kg (rat)

Dermal - >2000mg/kg (rabbit)

#### Corrosion/Compatibility Data

Corrosion: None

Compatibility: Does not affect glass, textiles, plastics, rubber, putty, paint, most metals, or sealants

Surface Treatment: No effect on existing surface treatments

Storage: Store in dry conditions at all times. IMPEL Rods are highly water soluble. Always store pesticides safely and out of the reach of children.

# IMPEL® RODS

## Technical Information

Decay damage is a major concern of everyone who owns property. And it's no wonder! Current estimates show that replacement materials, required to repair decay damage, consume up to 10% of the U.S. annual wood production.

For commercial property owners, destructive decay can mean expensive repairs and even the disruption of business. Newer home owners may also experience problems when decay is caused by improper construction. For owners of contemporary log homes, unchecked decay can have particularly expensive consequences because timbers are used for principle supports and exterior walls. And where decay exists in historic buildings, bridges, and other structures, the consequences can be devastating.

The key to decay prevention is controlling wood's exposure to moisture, and employing an effective preservative treatment where applicable. This IMPEL® Rod information will explain how decay-damaging conditions occur and how you can spot, prevent, and treat them.

### Decay Thrives On Moisture

Although wood looks and feels solid, it's actually made of millions of porous, thick-walled cells that are bound together. And given the right conditions, decay fungi can thrive, break down this cellular structure, and ultimately destroy wood. Once decay has begun, it offers a natural environment for termites and other wood-destroying insects, which can cause additional, serious damage to the wood's integrity.

Decay needs certain conditions to thrive, including: (1) a moisture content of only about 20% or higher; (2) oxygen; (3) food; and (4) a temperature in a general range of 45° to 100°F. Among these conditions, controlling moisture

is the most practical means of preventing or inhibiting the growth of decay. However, many conditions exist where high moisture cannot be controlled. When moisture problems are discovered, decay is often present. And where there is decay, there is an increased chance of insects that attack decaying wood,

such as termites, carpenter ants, and beetles.

In these circumstances, **IMPEL Rods are an effective preservative system for the prevention and control of fungal decay in wooden structures.**

**TABLE 1.  
PROPERTY INSPECTION FOR STRUCTURAL DECAY**

AREA	WHAT TO LOOK FOR	POSSIBLE CAUSE
Flooring	<ul style="list-style-type: none"> <li>•Baseboard Separation From Wall Or Floor</li> <li>•Evidence Of Insects</li> <li>•Evidence Of Decay, Rot</li> <li>•Buckled Or Cracked Flooring</li> </ul>	<ul style="list-style-type: none"> <li>• Foundation Settling</li> <li>• Water Leak Inside Wall</li> <li>• Excess Moisture Under House</li> <li>• Poor Ventilation Under House</li> <li>• Inadequate Foundation Waterproofing</li> <li>• Improper Lot Grading</li> <li>• Plumbing Leakage</li> </ul>
Baseboards	<ul style="list-style-type: none"> <li>•Signs Of Decay Or Paint Blistering</li> <li>•Dampness Or Decay In Subflooring</li> <li>•Evidence Of Insects</li> </ul>	<ul style="list-style-type: none"> <li>• Moisture In Wall</li> <li>• Moisture In Subfloor</li> <li>• Plumbing Or Roof Leakage</li> <li>• Standing Water Under House</li> <li>• Poor Attic Ventilation</li> <li>• Inadequate Vapor Barrier In Wall</li> </ul>
Walls (Interior/Exterior)	<ul style="list-style-type: none"> <li>•Blistered Plaster Or Paint</li> <li>•Mildew</li> <li>•Blistered Paint</li> <li>•Obvious Signs Of Mold, Decay</li> </ul>	<ul style="list-style-type: none"> <li>• Poor Ventilation Of Clothes Dryer</li> <li>• Paint Over Greasy Spots</li> <li>• Paint Over Termite Damage</li> <li>• Clogged Gutters</li> <li>• Rain Infiltration</li> </ul>
Siding Log Walls	<ul style="list-style-type: none"> <li>•Softness Or Sponginess Of Log Courses Or Wood Siding</li> </ul>	<ul style="list-style-type: none"> <li>• Improper Roof Angle</li> <li>• Inadequate Roof Overhang</li> <li>• Inadequate Vapor Barrier In Wall</li> </ul>
Eaves		
All Plumbing Areas	<ul style="list-style-type: none"> <li>•See All Of The Above</li> <li>•Check Surfaces Around All Sinks, Tubs, Showers, Clothes And Dishwashers</li> </ul>	<ul style="list-style-type: none"> <li>• See All Of The Above</li> <li>• Cracked Tiles Around Fixtures</li> <li>• Deteriorated Caulking</li> </ul>
Attics	<ul style="list-style-type: none"> <li>•Water Stains On Ceilings Or Walls</li> <li>•Obvious Signs Of Decay</li> </ul>	<ul style="list-style-type: none"> <li>• See All Of The Above</li> <li>• Poor Ventilation</li> </ul>
Under House	<ul style="list-style-type: none"> <li>•Damp Soil, Standing Water</li> <li>•Damp Foundation Walls, Mold Present</li> <li>•Ground To Floor Clearance Less Than 18"</li> <li>•Obvious Signs Of Decay, Fungus Growth</li> </ul>	<ul style="list-style-type: none"> <li>• Faulty Drainage Away From House</li> <li>• Poor Ventilation In Crawl Spaces</li> <li>• See All Of The Above</li> </ul>

## Frequent Inspection Means Greater Protection

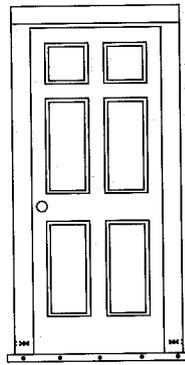
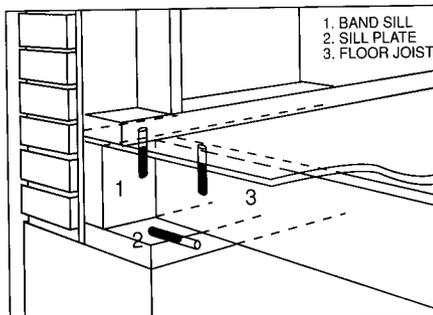
The best protection is a periodic inspection for signs of decay. Look for wood deterioration, discoloration, and fungal growth when examining a structure's interior, exterior, attic, and crawl space/foundation. Utility buildings, decks, fencing, and other wooden structures should also be inspected. See Table 1. for more examples.

Since moisture is a leading cause of decay, closely examine structural areas where there may be:

- (1) Soil Contact;
- (2) Frequent Rain;
- (3) Rain Seepage;
- (4) Water Flow From Roof;
- (5) Splashing Rain;
- (6) Water Collecting Against Wood;
- (7) Plumbing Leaks; and
- (8) Condensation.

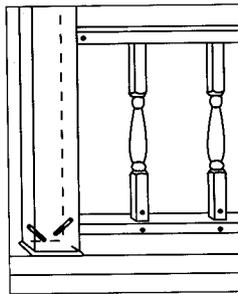
All areas where wood is exposed to water are at high risk, such as in soil, concrete, and other places that retain moisture. These high exposure areas include:

**(1) Flooring and Foundation Systems.** The greatest risks for decay are at exposed wood ends and at wood joints where moisture is more readily absorbed than on side surfaces. These areas are especially at risk in wood construction under kitchens and bathrooms where leaky plumbing, deteriorated caulking, and inadequate moisture barriers may be common. Other areas of concern are where joists rest on block piers; at band sills around dirt-filled porches; at untreated deck headers; and at foundation sites near chimneys. To protect these areas, install IMPEL Rods as shown within 6 inches of wood ends and at recommended spacings thereafter.

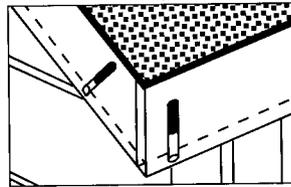


**(2) Window and Door Framing.** Anywhere weathering of paint and exposure has occurred, especially at the bottom of windows and doors, is at risk of decay. Other areas include the base of garage doors and crawl space access doors and their frames. For protection, install IMPEL Rods as shown.

**(3) Exterior Steps, Porches and Decking.** Install IMPEL Rods as shown in posts, rails, wood ends, joints, and trim. Hollow columns can be protected by installing rods through the thickness edges of side pieces.



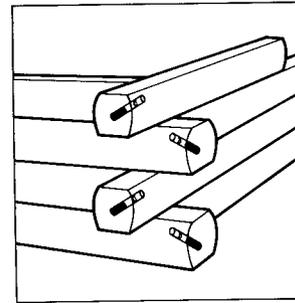
**(4) Roof Trim and Facia.** Facia boards supporting gutter systems and soffits are especially vulnerable to decay attack. Install IMPEL Rods within 6 inches of corners (as shown) and at recommended spacings thereafter. Also protect areas where trim is in contact with skylights, vents, chimneys and where excessive moisture is common.



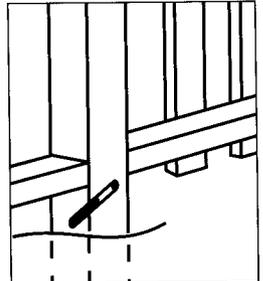
**(5) Roof and Attic.** Install IMPEL Rods where leaks have caused water damage to sup-

port members and rafters.

**(6) Log Construction.** IMPEL Rods should be installed (as shown) in corner areas, lower courses of logs, joints, or wherever logs are not protected from the elements.



**(7) Poles and Posts.** Where moisture may cause decay; especially in building and foundation poles; and farm and residential fence posts.



If the wood's structural integrity has been damaged to the extent that repair or replacement is necessary, repairs and/or replacements should be made and the source of moisture should be reduced or eliminated. Inspection should also reveal areas where potential damage can occur. In either case, the application of IMPEL Rods is the appropriate step to preserve wood integrity.

## The IMPEL Rod System

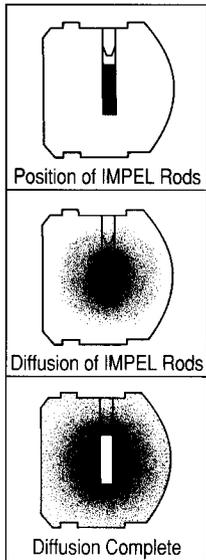
IMPEL Rods are easy, low-cost, and EPA-approved as a decay protection and prevention system for wood. They have an appearance similar to glass rods and are available in a variety of sizes for a wide range of applications (see Table 2.).

**TABLE 2.**  
**RECOMMENDED IMPEL ROD SIZES FOR VARIOUS APPLICATIONS**

AREA	IMPEL Rod Size
Smaller Window And Door Frames And Smaller Millwork	1/4" x 1/2"
Larger Window And Door Frames And Facial Applications In Dimensional Lumber	1/4" x 3/4"
Facia Boards, Eaves And Other 1" Board Applications	1/2" x 1"
Joists, Rafters, Girders, Headers, Sleepers And Similar Applications	1/2" x 1"
Foundation Posts, Large Beams, Poles And Timber Applications	1/2" x 2"
Logs And Timbers	1/2" x 2"
Large Timbers And Poles	3/4" x 3"

IMPEL Rods are molded from fused, water-diffusible borates which are internationally recognized as an effective and well established wood preservative. Borates also effectively control termites, carpenter ants, a variety of beetles, and many other wood-boring insects. They are "user friendly" and environmentally acceptable. Borates are highly toxic to fungal decay and many insects at concentrations that are not poisonous to humans or other mammals.

IMPEL Rods are placed into holes drilled in



wood at key locations as previously discussed. As the Rods dissolve, the borate preservative migrates to areas of highest moisture and concentrates where wood is most susceptible to decay. If the wood dries, the Rods stop diffusing.

The residual preservative remains in place. When the moisture content rises, the Rods resume diffusion. Depending upon conditions of moisture,

IMPEL Rods need not be replaced for years. At recommended spacings (See Table 3.), IMPEL Rods will control existing decay and prevent future growth.

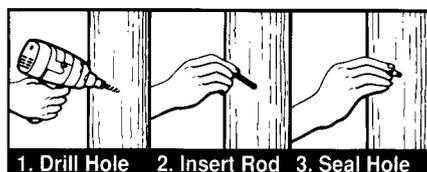
### Three Simple Steps

There are three easy steps to install IMPEL Rods:

(1) Drill appropriate sized holes to accommodate the predetermined number and size of IMPEL Rods required;

(2) Insert the suitable size and number of IMPEL Rods into the holes; and

(3) Seal the holes with a treated wooden dowel, wood filler, or caulk. The covering may be painted, if desired.



**TABLE 3.  
RECOMMENDED IMPEL ROD SIZES AND SPACING  
FOR VARIOUS WOOD DIMENSIONS**

Nominal Size	Rod Size (Dia. x Length)	Hole Size (Dia. x Length)	Space Between Holes	No. Of Rods Per Hole
<b>Dimensional Lumber</b>				
1" x 1"	¼" x ½"	⅜" x ¾"	12"	1
1" x 2"	¼" x ½"	⅜" x 1"	8"	1
1" x 4"	¼" x ½"	⅜" x 2 ¼"	6"	2
1" x 6"	¼" x ½"	⅜" x 3 ¼"	4"	2
2" x 2"	¼" x ½"	⅜" x 1 ½"	7"	2
2" x 2"	⅜" x 1"	⅝" x 1 ½"	12"	1
2" x 4"	⅜" x 1"	⅝" x 2 ¼"	8"	1
2" x 6"	⅜" x 1"	⅝" x 3 ¼"	10"	2
2" x 8"	⅜" x 1"	⅝" x 4 ½"	7"	2
2" x 10"	⅜" x 1"	⅝" x 6"	8"	2
2" x 10"	½" x 2"	⅝" x 5 ½"	12"	1
2" x 12"	⅜" x 1"	⅝" x 7"	7"	3
2" x 12"	½" x 2"	⅝" x 6 ½"	10"	1
<b>Sawn Timbers</b>				
4" x 4"	½" x 2"	⅝" x 2 ¾"	14"	1
4" x 6"	½" x 2"	⅝" x 3 ¾"	9"	1
4" x 8"	½" x 2"	⅝" x 4 ¾"	6"	1
6" x 6"	½" x 2"	⅝" x 4 ¾"	11"	2
6" x 6"	¾" x 3"	⅝" x 4 ¾"	15"	1
6" x 8"	½" x 2"	⅝" x 5 ¾"	8"	2
6" x 8"	¾" x 3"	⅝" x 5 ¾"	14"	1
6" x 12"	¾" x 3"	⅝" x 7 ½"	9"	1
8" x 8"	¾" x 3"	⅝" x 5 ¾"	10"	1
10" x 10"	¾" x 3"	⅝" x 6 ¼"	13"	2
12" x 12"	¾" x 3"	⅝" x 7 ¼"	9"	2
<b>Round Logs, Posts And Poles</b>				
4" Diameter	½" x 2"	⅝" x 2 ¾"	14"	1
6" Diameter	½" x 2"	⅝" x 4"	12"	2
6" Diameter	¾" x 3"	⅝" x 4 ½"	15"	1
8" Diameter	¾" x 3"	⅝" x 5"	12"	1
10" Diameter	¾" x 3"	⅝" x 6"	7"	1
12" Diameter	¾" x 3"	⅝" x 9"	10"	2
14" Diameter	¾" x 3"	⅝" x 10"	7"	2
16" Diameter	¾" x 3"	⅝" x 12"	9"	3
<p><b>Note:</b> Recommended application rates are based upon rods being installed in a linear pattern. If necessary, holes can be drilled on an angle in order to have room for plug and expansion.</p> <p><b>Caution:</b> When drilling into structural support members, such as a joist, consult your local building code authority for restrictions. Extensive drilling could result in structural weakening.</p>				

## The Installation Of IMPEL Rods

A few examples of where to place IMPEL Rods and the sizes to use are found in Table 2.

IMPEL Rods can be inserted through any wood surface, depending on access, in almost any pattern. It is important to understand that spacing depends upon the size of the IMPEL Rod, the dimensions of the wood, and the volume of wood to be treated.

For facial applications, IMPEL Rods should be inserted in a staggered pattern covering the entire affected length. Otherwise, IMPEL Rods may be installed through the thickness edge in a linear pattern beginning at 6 inches from a joint or the end of the wood.

For best results, linear spacings (i.e., along the grain) should not exceed 18 inches on center. And since diffusion across the grain is more limited, spacings should not exceed 6 inches on center. Also, positioning IMPEL Rods in certain applications may require drilling at various angles to the wood's surface.

### Selecting The Correct IMPEL Rod

The recommended size of IMPEL Rods and their spacings for various sawn wood dimensions and logs are provided in Table 3.

### The Durability Of IMPEL Rods

The IMPEL Rod system offers a long-lasting, highly concentrated, solid form of boron that slowly dissolves over time. The less consistently moist the environment, the longer IMPEL Rods will last.

For example, IMPEL Rods provide long-lasting protection in crawl spaces where the structure is protected from continuously wet conditions. However, where there are consistently moist to wet conditions, research suggests that exposed IMPEL Rods can retain their effectiveness for 3 to 10 years. They should, however, be inspected at regular service intervals in these conditions. In any event, IMPEL Rods' effectiveness can be enhanced if wood surfaces are sealed with a water sealant or water repellent paint.

### Safety And Handling Precautions

IMPEL Rods should be used only in accordance with manufacturer's instruction and only as a wood preservative. Suitable clothing should be worn and gloves should be used when handling. **DO NOT ALTER ROD SIZES BY CUTTING OR BREAKING; SHARP EDGES MAY BE EXPOSED.** Do not use where food or drink can become contaminated. Keep out of reach of children at all times. Dispose of used packaging materials safely in ordinary trash collection containers. For additional details, see the IMPEL Rods Material Safety Data Sheet.

### Ordering IMPEL Rods And Obtaining Technical Assistance

IMPEL Rods are available through authorized dealers of Chemical Specialties, Inc. (CSI). For the dealer nearest you, contact CSI directly by writing or calling:

PoleCare, a division of CSI • P.O. Box 610  
5910 Pharr Mill Rd. • Harrisburg, NC 28075  
800-355-6615 • 800-801-0078

<b>IMPEL Rods: TECHNICAL INFORMATION</b>	
<b>Chemical And Physical Data</b>	
<b>Active:</b>	100% Anhydrous Disodium Octaborate ( $\text{Na}_2\text{B}_8\text{O}_{13}$ )
<b>Equivalents:</b>	18% Sodium Oxide ( $\text{Na}_2\text{O}$ ); 82% Boric Oxide ( $\text{B}_2\text{O}_3$ )
<b>Specific Gravity:</b>	2.2g/cc @ 20°C
<b>Appearance:</b>	Cylindrical, glass-like rods; colorless to opaque
<b>Odor:</b>	None
<b>Melting Point:</b>	> 1000°C
<b>Solubility in <math>\text{H}_2\text{O}</math>:</b>	100% by weight
<b>Fire And Explosion Data</b>	
<b>None:</b>	IMPEL Rods do not alter combustibility or ignition point of wood
<b>Flashpoint:</b>	None
<b>Health Hazard Data</b>	
<b>Skin Contact:</b>	May be slightly irritating; reversible
<b>Eye Contact:</b>	May be slightly irritating; reversible
<b>Ingestion:</b>	Nausea, vomiting
<b>LD50:</b>	Oral-1760mg/kg(rat) Dermal->2000mg/kg (rabbit)
<b>Corrosion/Compatibility Data</b>	
<b>Corrosion:</b>	None
<b>Compatibility:</b>	Does not affect glass, textiles, plastics, rubber, putty, paint, most metals, or sealants
<b>Surface Treatment:</b>	No effect on existing surface treatments
<b>Storage:</b>	Store in dry conditions at all times. IMPEL Rods are highly water soluble. Always store pesticides safely and out of the reach of children.

Distributed By:



PoleCare, a division of CSI • P.O. Box 610 • 5910 Pharr Mill Road • Harrisburg, NC 28075 • 800-801-0078

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## IMPEL® ROD PRICE LIST

Effective March 15, 1997

### 3/4" X 3" Impel® Rods

<u>Quantity</u>	<u>Unit Price</u>	<u>Utility/Contractor Price</u>
1 - 5 pails	\$1.75 each	\$1.58 each
6 - 15 pails	\$1.45 each	\$1.31 each
18 - 25 pails	\$1.25 each	\$1.13 each
26 + pails	\$1.09 each	\$0.98 each

### 1/2 " x 4 " Impel® Rods

<u>Quantity</u>	<u>Unit Price</u>	<u>Utility/Contractor Price</u>
1 - 5 pails	\$1.50 each	\$1.35 each
6 - 10 pails	\$1.21 each	\$1.09 each
16 - 25 pails	\$1.00 each	\$0.90 each
26 + pails	\$0.85 each	\$0.77 each

**FOB:** CSI Warehouse, Wilmington , NC

**Terms:** Net 30 Days (Subject to prior credit approval)

**Packaging :** 3/4" x 3"- 500 rods per five (5) gallon pail - wt. 51#

1/2" x 4"- 500 rods per five (5) gallon pail - wt. 31#

**Delivery:** From stock

**Shipment:** Best way, prepay and add



**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CONTAINS PETROLEUM DISTILLATE  
AND COPPER NAPHTHENE**

**FIRST AID PROCEDURE**  
Harmful if swallowed. May be absorbed through skin. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling. Avoid breathing vapor or spray mist. Use in a well ventilated area.

Do not breath vapors or mist during brush, roll, spray or dip applications. Wear a NIOSH/MHSA - approved mist/vapor respirator when spraying for continued or prolonged use of this product or for frequent use of this product.

**IF SWALLOWED:** Do not induce vomiting. CALL PHYSICIAN IMMEDIATELY.

**IF INHALED:** Remove to fresh air.

**IF IN EYES:** Flush with plenty of water and get immediate medical attention.

**IF CLOTHING CONTAMINATED:** Remove and wash thoroughly before reuse.

**ENVIRONMENTAL HAZARDS**

Do not discharge effluent containing this product into lakes, streams ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**PHYSICAL OR CHEMICAL HAZARDS**

Do not use, pour, spill or store near heat or open flame. Use only with adequate ventilation. Close container after each use.

**STORAGE AND DISPOSAL**

Product will not freeze. Store at temperatures between 0° and 120°F. If the product has been spilled, spread absorbent, then pick up and place in containers. DO NOT STORE opened packages.  
**DISPOSAL:** Wrap any cut portion of CUNAP WRAP™ and put into trash collection.

# CUNAP WRAP™

Patent No. 4,731,267

## WOOD PRESERVATIVE

EPA Reg. No. 10465-35

EPA Est. No. 54471-NB001 □

**WOOD EXTERIOR SURFACE  
WRAP FOR ABOVE OR BELOW  
GROUND TREATMENT FOR  
POLES, POSTS AND PILINGS**

**KEEP OUT OF REACH OF CHILDREN  
WARNING**

**COMBUSTIBLE**

**HARMFUL IF SWALLOWED**  
See other precautionary statements  
on side panel.

**IN CASE OF MEDICAL QUESTIONS, EMERGENCIES,  
OR ACCIDENTS INVOLVING THIS PRODUCT, CALL  
CHEM-TREC AT 1-800-424-9300.**

**CONTAINS INGREDIENTS LISTED BELOW  
SATURATED IN SYNTHETIC ABSORBENT CLOTH  
ENCAPSULATED IN CHEMICAL AND VAPOR  
RESISTANT CONTAINERS WITH AN ADDITIONAL  
CHEMICAL RESISTANT VAPOR BARRIER CROSS  
LAMINATED BACKING.**

**ACTIVE INGREDIENTS**

Copper NAPHTHENE  
(2% Copper as metal).....19.25%  
INERT INGREDIENTS.....80.75%  
TOTAL.....100.00%



Manufactured For:

**CHEMICAL SPECIALTIES, INC**  
One Woodlawn Green, Suite 250  
Charlotte, NC 28217  
(800) 801-0078/(206)251-8275

**X 18"**

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

For Exterior Use Only.

CUNAP WRAP containing copper naphthenate is intended for use only on poles, posts and pilings as a wood preservative treatment.

CUNAP WRAP containing copper naphthenate provides protection against moisture, fungal rot and termite damage. This copper naphthenate wood preservative and insecticide will preserve, protect and seal wood surfaces that will be in contact with soil or concrete. Depending upon climatic conditions, species of wood to which applied, moisture and humidity, treatment extends service life several years.

**PREPARATION AND APPLICATION**

Wood should be clean, dry, well seasoned and free of bark. When using CUNAP WRAP as a groundline treatment, excavate around wood to allow top of wrap to extend 2" above the groundline.

Protect eyes and skin from contact.

Wipe brush area 3" above groundline and approximately 20" below groundline removing dirt and decayed material.

Lift CUNAP WRAP from carton and lay on ground. Unfold, exposing plastic envelopes. Cut open bags as shown by lines, exposing saturated pads. Avoid cutting through to backing.



Wrap proper length CUNAP WRAP around the pole with saturated pad against the pole and staple or tack firmly in place. Staple the short side of the backing first and overwrap with longer edge. Allow wrap to extend 2" above groundline.

Backfill excavation, tamping firmly.

# Technical Information

## Product Description

CUNAP WRAP™ consists of two tough wraps. One is a chemical, vapor, and UV resistant envelope, the other a vapor barrier film backing. Both encase a thick pad saturated with a 2% copper naphthenate solution in P9 oil.

CUNAP WRAP's unique design provides a longer lasting reservoir of active ingredients that carries more preservative into the wood. Since there are no filler ingredients in the formula, the wood can utilize 100% of the available preservative. The preservative penetrates approximately 1" of treated and untreated poles. CUNAP WRAP is registered under U.S. Patent No. 4,731,267.

## Environmental Information

The copper naphthenate-based wood preservative has a proven record of environmental acceptability. It is effective as a fungicide and an insecticide to protect against rot, mildew, moisture and insect attack.

CUNAP WRAPs are insoluble in water and leach resistant. They're significantly better for the environment and maintenance personnel when compared to other groundline wraps or greases. The unique self-contained design protects personnel and the site from direct exposure to chemicals.

Studies on various wood species treated with copper naphthenate formulations show that it matches or exceeds the service life possible with pentachlorophenol and other preservative treatments.

## Standards

Copper naphthenate is included in the American Wood Preservers' Association (AWPA) Standards. AWPA Standard M4-95, the "Standard for the Care of Preservative-Treated Wood Products", states that copper naphthenate in a P9 oil solvent at a 2% concentration of copper metal is approved for retreatment of wood originally treated with pentachlorophenol, creosote, and waterborne preservatives.

## Federal And Military Specifications

Copper naphthenate is listed in Federal Specification TT-W-572 B (non-pressure); and Military Specification MIL-W-18142 B (non-pressure, ship and boat use). It is registered with the Environmental Protection Agency and is not a "restricted use" pesticide.

## Rely On CUNAP WRAP To Reduce Maintenance Costs

CUNAP WRAP's low environmental impact and high worker safety is compatible with the 'greening' policies of your utility and the communities it serves.

Call your maintenance representative for details about how CUNAP WRAP can reduce your maintenance costs. Or, contact:

**PoleCare, a division of  
Chemical Specialties, Inc.**  
P.O. Box 610 • 5910 Pharr Mill Rd.  
Harrisburg, NC 28075

**Call toll-free 1-800-355-6615  
or 1-800-801-0078.**

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## CUNAP WRAPS PRICE LIST

Effective March 15, 1997

30" X 18"	\$ 14.00
36" X 18"	\$ 15.00
42" X 18"	\$ 18.00
48" X 18"	\$ 19.00
54" X 18"	\$ 24.00
60" X 18"	\$ 26.00
66" X 18"	\$ 27.00
72" X 18"	\$ 30.00

- **NOTE:** For orders less than \$150.00 there will be a \$25.00 special handling fee.
- **Prices:** FOB PoleCare Warehouse - Columbus, NE
- **Terms:** Net 30 Days
- **Shipment:** UPS or Best Way  
Prepay & Add



# CURAPAZO

KEEP OUT OF REACH OF CHILDREN

**DANGER**

STATEMENT OF PRACTICAL TREATMENT

**IF IN EYES:** Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes.

**IF ON SKIN:** Wash thoroughly with plenty of soap and water. Get medical attention.

**IF SWALLOWED:** Call a physician or poison control center. Drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contra-indicate use of gastric lavage.

SEE SIDE PANEL FOR ADDITIONAL  
PRECAUTIONARY STATEMENTS

EFFECTIVE GROUNDLINE  
TREATMENT FOR CONTROL  
OF DECAY AND INSECTS

FOR COMMERCIAL APPLICATOR  
USE ONLY

FOR SALE ONLY IN 50 POUND OR  
GREATER CONTAINERS

## INGREDIENT STATEMENT

### ACTIVE INGREDIENTS:

Copper naphthenate..... 18.165%  
Borax (sodium tetraborate  
decahydrate)..... 49.00%

### INERT INGREDIENTS:

TOTAL..... 100.00%

\*Equivalent to 2% metallic copper.

Covered under Section 24(c) of the Federal Insecticide, Fungicide, and Rodenticide Act.

BATCH NO. [REDACTED]

NET  
CONTENTS:

5 GAL. DRUM  
(81122030)  6 GAL. DRUM  
(81123002)

35 GAL. DRUM  
(81122007)

EPA Est. No. 1022-TN-1  
IBD-PL-1491A  
8/97

EPA Reg No. 1022-536-50534  
Printed in U.S.A.

Distributed By:  
ISK BIOSCIENCES CORPORATION  
INDUSTRIAL BIOCIDES DIVISION  
416 East Brooks Rd.  
Memphis, Tennessee 38109

CuRap is a registered trademark of ISK Biosciences Corporation.

# CURAPZO

## DIRECTIONS FOR USE

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

**CURAPZO** is intended for use as a remedial treatment for standing wood utility poles and as a primary or remedial treatment for wooden structures standing in the ground that are susceptible to attack by decay and soft rot fungi, termites, carpenter ants, or wood boring beetles.

**CURAPZO** may be applied to form a layer 1/16-inch to 3/8-inch thick by brush, trowel, or by application to **POL-NU-PAPER**. **APOL-NU-BANDAGE MAKER** can also be used to prepare a **BANDAGE**. Use a trowel to apply **CURAPZO** to deep checks in wood or fill a caulking gun with the preservative and apply liberally.

For utility poles, pilings, posts, and other wooden structures standing in the ground, excavate the soil away from the structure to a depth of about 18 inches. Wire brush or scrape the surface to remove adhering soil and remove any damaged wood. The structure should be inspected for internal decay and insect attack by taking increment borings. If internal damage is found, early replacement or stubbing is recommended. Plug bore holes with locust plugs or treated wood plugs.

**BANDAGES** may be used to cover groundline areas of structures in bands typically 18 to 22 inches in height. **CURAPZO** should be applied to at least cover the wood surface 4 inches below the last evidence of decay and 3 inches above the groundline. More than one **BANDAGE** may be used in special cases where the structure spans a height greater than 22 inches, such as on hillside or the circumference of the structures exceeds the **BANDAGE** length. Overlap ends of the **BANDAGE** to insure complete coverage of pole with preservative paste. Wrap **BANDAGE** tightly, stapling or nailing it in place. Wrap top with 3" black reinforced tape allowing tape to overlap bandage and staple into place. Back-fill and tamp dirt firmly, mounding within 1-inch of **BANDAGE** top. Do not back-fill above top edge of **BANDAGE**.

For control of internal decay in utility poles, drill 3/4 inch holes in each quarter of the pole near the areas of the pole where internal decay protection is required. Do not drill holes nearer than two feet of each other in the vertical direction. These holes should be at a 45 degree angle

downward and to a depth equal to or slightly greater than the radius of the pole. Pack the preservative paste into the holes leaving enough room to insert treated wood plugs into the holes as a cap.

## RAILROAD TIES

**Adzed Railroad Ties:** **CURAPZO** may be applied to adzed railroad ties by brush, trowel, or roller at a thickness of 1/8-inch. The adzed-treated area should be covered with a plate the same size as the adzed area, leaving no exposed preservative.

**Wood treated with CURAPZO should not be used where it may come in contact with food, feed or potable water.**

## STORAGE AND DISPOSAL

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

**STORAGE:** Store away from food or feed in a secure, well-ventilated area protected from extreme temperatures. Do not allow to freeze. Do not transfer to unmarked containers. Keep container closed when not in use.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

## CONTAINER DISPOSAL

**Metal Container:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

**Metal Drums:** Completely empty liner. Dispose of liner in a sanitary landfill if allowed by state and local authorities. If drum is damaged and cannot be reused, dispose of in the same manner. Plastic and paper **CURAPZO** packaging materials may be used as wraps to cover the **CURAPZO** treatment around the poles. Otherwise, dispose of empty bag(s) in a sanitary landfill or by incineration if allowed by State and local authorities.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS & DOMESTIC ANIMALS

### DANGER

Corrosive. Causes irreversible eye damage and skin burns. May be fatal if swallowed or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after skin contact and before eating, drinking, use of tobacco products, or using restrooms. In case of medical questions, emergencies or accidents involving this product, call Chemtrec at 1-800-424-9300.

Applicators must wear gloves impervious to the wood treatment formulation (e.g., polyvinyl chloride (PVC) or neoprene) in all situations where dermal contact is expected (e.g., during the actual application process and when handling freshly treated wood).

Applicators should wear long sleeved shirts, long pants, and an impermeable apron during the application process and all situations where dermal contact is expected. Remove contaminated clothing and wash before reuse. Launder work clothing separately from other household clothing. Dispose of worn-out work clothing and work shoes or boots in any general landfill, in the trash, or in any other manner approved for pesticide disposal.

## ENVIRONMENTAL HAZARDS

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

## PHYSICAL AND CHEMICAL HAZARDS

Do not use or store near heat or open flame.

## WARRANTY AND LIMITATION OF DAMAGES

Seller warrants to those persons lawfully acquiring title to this product that at the time of the first sale of this product by seller that this product conformed to its chemical description and was reasonably fit for the purposes stated on the label when used in accordance with Seller's directions under normal conditions of use, and Buyers and users of this product assume the risk of any use contrary to such directions. SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY, AND NO AGENT OR SELLER IS AUTHORIZED TO DO SO. In no event shall Seller's liability for any breach of warranty exceed the purchase price of the material as to which a claim is made.

Buyer and users of this product are responsible for all loss or damage from use or handling of this product which results from conditions beyond the control of Seller, including, but not limited to, incompatibility with other products unless otherwise expressly provided in the Directions of Use of this product, weather conditions, moisture conditions or other environmental conditions outside of the ranges that are generally recognized as being conducive to good industrial and/or application practices.



# CREOSOTE

## PRESSURE-TREATED WOOD

### CONSUMER INFORMATION

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This wood has been preserved by pressure-treatment with an EPA-registered pesticide containing creosote to protect it from insect attack and decay. Wood treated with creosote should be used only where such protection is important.

Creosote penetrates deeply into and remains in the pressure-treated wood for a long time. Exposure to creosote may present certain hazards. Therefore, the following precautions should be taken both when handling the treated wood and in determining where to use the treated wood.

### USE SITE PRECAUTIONS

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Wood treated with creosote should not be used where it will be in frequent or prolonged contact with bare skin (for example, chairs and other outdoor furniture) unless an effective sealer has been applied.

Creosote-treated wood should not be used in residential interiors. Creosote-treated wood in interiors of industrial buildings should be used only for industrial building components which are in ground contact and are subject to decay or insect infestation and wood block flooring. For such uses, two coats of an appropriate sealer must be applied. Sealers may be applied at the installation site.

Wood treated with creosote should not be used in the interiors of farm buildings where there may be direct contact with domestic animals or livestock which may crib (bite) or lick the wood.

In interiors of farm buildings where domestic animals or livestock are unlikely to crib (bite) or lick the wood, creosote-treated wood may be used for building components which are in ground contact and are subject to decay or insect infestation if two coats of an effective sealer are applied. Sealers may be applied at the installation site.

Do not use creosote-treated wood for farrowing or brooding facilities.

Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such use would be structures or containers for storing silage or food.

Do not use treated wood for cutting boards or countertops.

Only treated wood that is visibly clean and free of surface residues should be used for patios, decks and walkways.

Do not use treated wood for construction of those portions of beehives which may come into contact with the honey.

Creosote-treated wood should not be used where it may come into direct or indirect contact with public drinking water, except for uses involving incidental contact such as docks and bridges.

Do not use creosote-treated wood where it may come into direct or indirect contact with drinking water for domestic animals or livestock, except for uses involving incidental contact such as docks and bridges.

### HANDLING PRECAUTIONS

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Dispose of treated wood by ordinary trash collection or burial. Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g., construction sites) may be burned only in commercial or industrial incinerators or boilers in accordance with state and Federal regulations.

Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood.

Avoid frequent or prolonged skin contact with creosote-treated wood; when handling the treated wood, wear longsleeved shirts and long pants and use gloves impervious to the chemicals (for example, gloves that are vinyl-coated).

When power-sawing and machining, wear goggles to protect eyes from flying particles.

After working with the wood, and before eating, drinking, and use of tobacco products, wash exposed areas thoroughly.

If oily preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

Coat tar pitch and coal tar pitch emulsion are effective sealers for creosote-treated wood-block flooring. Urethane, epoxy, and shellac are acceptable sealers for all creosote-treated wood.

# PENTACHLOROPHENOL PRESSURE-TREATED WOOD

## CONSUMER INFORMATION

This wood has been preserved by pressure-treatment with an EPA-registered pesticide containing pentachlorophenol to protect it from insect attack and decay. Wood treated with pentachlorophenol should be used only where such protection is important.

Pentachlorophenol penetrates deeply into and remains in the pressure-treated wood for a long time. Exposure to pentachlorophenol may present certain hazards. Therefore, the following precautions should be taken both when handling the treated wood and determining where to use and dispose of the treated wood.

## USE SITE PRECAUTIONS

Logs treated with pentachlorophenol should not be used for log homes.

Wood treated with pentachlorophenol should not be used where it will be in frequent or prolonged contact with bare skin (for example, chairs and other outdoor furniture), unless an effective sealer has been applied.

Pentachlorophenol-treated wood should not be used in residential, industrial, or commercial interiors except for laminated beams or for building components which are in ground contact and are subject to decay or insect infestation and where two coats of an appropriate sealer are applied. Sealers may be applied at the installation site.

Wood treated with pentachlorophenol should not be used in the interiors of farm buildings where there may be direct contact with domestic animals or livestock which may crib (bite) or lick the wood.

In interiors of farm building where domestic animals or livestock are unlikely to crib (bite) or lick the wood, pentachlorophenol-treated wood may be used for building components which are in ground contact and are subject to decay or insect infestation and where two coats of an appropriate sealer are applied. Sealers may be applied at the installation site.

Do not use pentachlorophenol-treated wood for farrowing or brooding facilities.

Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such sites would be structures or containers for storing silage or food.

Do not use treated wood for cutting-boards or countertops.

Only treated wood that is visibly clean and free of surface residue should be used for patios, decks and walkways.

Do not use treated wood for construction of those portions of beehives which may come into contact with the honey.

Pentachlorophenol-treated wood should not be used where it may come into direct or indirect contact with public drinking water, except for uses involving incidental contact such as docks and bridges.

Do not use pentachlorophenol-treated wood where it may come into direct or indirect contact with drinking water for domestic animals or livestock, except for uses involving incidental contact such as docks and bridges.

## HANDLING PRECAUTIONS

Dispose of treated wood by ordinary trash collection or burial. Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g., construction sites) may be burned only in commercial or industrial incinerators or boilers rated at 20 million BTU/hour or greater heat input or its equivalent in accordance with state and Federal regulations.

Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood.

Avoid frequent or prolonged skin contact with pentachlorophenol-treated wood; when handling the treated wood, wear long-sleeved shirts and long pants and use gloves impervious to the chemicals (for example, gloves that are vinyl-coated).

When power-sawing and machining, wear goggles to protect eyes from flying particles.

After working with the wood, and before eating, drinking, and use of tobacco products, wash exposed areas thoroughly.

If oily preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

Urethane, shellac, latex epoxy enamel and varnish are acceptable sealers for all pentachlorophenol-treated wood.

# **INORGANIC ARSENICAL PRESSURE-TREATED WOOD**

(INCLUDING: CCA, ACA, and ACZA)

## **CONSUMER INFORMATION**

This wood has been preserved by pressure-treatment with an EPA-registered pesticide containing inorganic arsenic to protect it from insect attack and decay. Wood treated with inorganic arsenic should be used only where such protection is important.

Inorganic arsenic penetrates deeply into and remains in the pressure-treated wood for a long time. Exposure to inorganic arsenic may present certain hazards. Therefore, the following precautions should be taken both when handling the treated wood and in determining where to use the treated wood.

## **USE SITE PRECAUTIONS**

Wood pressure-treated with waterborne arsenical preservatives may be used inside residences as long as all sawdust and construction debris are cleaned up and disposed of after construction.

Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such sites would be structures or containers for storing silage or food.

Do not use treated wood for cutting-boards or countertops.

Only treated wood that is visibly clean and free of surface residue should be used for patios, decks and walkways.

Do not use treated wood for construction of those portions of beehives which may come into contact with the honey.

Treated wood should not be used where it may come into direct or indirect contact with public drinking water, except for uses involving incidental contact such as docks and bridges.

## **HANDLING PRECAUTIONS**

Dispose of treated wood by ordinary trash collection or burial. Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g., construction sites) may be burned only in commercial or industrial incinerators or boilers in accordance with State and Federal regulations.

Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood.

When power-sawing and machining, wear goggles to protect eyes from flying particles.

After working with the wood, and before eating, drinking, and use of tobacco products, wash exposed areas thoroughly.

If preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

**APPENDIX H**

**CALIFORNIA RULES - TREATED WOOD WASTE**

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STATE OF CALIFORNIA

California has its own rules for evaluation of solid wastes as hazardous which go beyond the federal rules. Between 1984 and 1994, the California Environmental Protection Agency has issued variances which, when the provisions are met, exclude the requirements for testing and allow disposal of discarded treated wood products as non-hazardous materials.

- Reuse--On July 17, 1985, a variance was granted, which remains in effect and stated that "...when these materials (treated wood) are recycled in a way consistent with the use of the preservative (it) is a beneficial use and do not need to be regulated."

The variance to California Administrative Code (Chapter 30, Division 4, Title 22) provides reused treated wood may be handled as a nonhazardous material provided it is "reused in a way that it replaces wood that would be normally treated with a similar preservative" and that "...the recycled wood is not to be used in a manner that constitutes disposal or in a manner that is inconsistent with the use of treated wood."

- Disposal--Variances have also been issued by the state for the various types of treated wood to allow disposal by the users of the materials as non-hazardous wastes. The variances are subject to the following provisions:
  1. The waste is disposed at a Class III refuse landfill containing a liner and leachate collections system as specified in Chapter 15, Title 23, California Code of Regulations.
  2. The landfill described in the above paragraph must be approved for the disposal of these wastes by the Regional Water Quality Control Board and/or any other federal, state or local agency with appropriate jurisdiction.
  3. The wood must be managed at the landfill so that scavenging is not allowed.

It should be noted that in a few cases the local Regional Water Quality Control Boards have restricted specific facilities from accepting treated wood due to space or other concerns. In such cases, materials have to go to a different facility.

**APPENDIX I**  
**WESTERN'S CONSUMER INFORMATION SHEET -**  
**TREATED WOOD UTILITY POLES**

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## **CONSUMER INFORMATION SHEET**

### **TREATED WOOD UTILITY POLES**

Utility poles are treated with pesticides and fungicides to protect the poles from insect and fungus attack. These chemicals make the wood poles undesirable or dangerous for certain uses. It is important that persons accepting or purchasing used poles from the Western Area Power Administration understand and follow the information presented below. Poles will not be given to persons who do not indicate, by signing the consent form, that they have read and understand the following information, and that they intend to use the poles in a manner that will not adversely affect human and animal health and water resources.

#### **Potential Health and Environmental Risks**

Most wood preservatives are injurious to human and animal health via all routes of entry, e.g., inhalation, skin absorption, and ingestion. Effects can include muscular weakness, headache, dizziness, nausea, vomiting, gastrointestinal discomfort, respiratory distress, confusion, loss of consciousness, and death. Some of these products may also damage internal organs such as the kidney, liver, pancreas, and spleen. Vapors may irritate eyes, nose, throat, and respiratory tract. They may cause fetal death or deformity if pregnant women are exposed. The most common form of health hazard from wood preservatives is skin irritation or contact dermatitis from prolonged skin contact. Some wood preservatives may be carcinogenic.

Wood preservatives may have adverse effects on domestic animals such as livestock, chickens, and bees. They may also adversely affect wildlife species. Wood preservatives that leach from poles may contaminate groundwater and surface water. The chemical may be injurious to aquatic vegetation and aquatic animals.

## **Precautions and Protective Measures**

Exposure to wood preservatives may present certain hazards.

Wood preservatives penetrate deeply into the wood and remain in pressure treated wood for a long time.

Precautions should be taken both when handling the treated wood and in determining where to use the treated wood.

Never burn treated wood in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals are produced as part of the smoke and ashes.

Do not use wood treated with creosote or pentachlorophenol where it will be in frequent or prolonged contact with bare skin (for example, chairs and other outdoor furniture) unless an effective sealer has been applied.

Do not use creosote treated wood in residential interiors. Do not use pentachlorophenol treated wood in residential, industrial or commercial interiors, or creosote treated wood in commercial or industrial interiors, except where two coats of an appropriate sealer are applied.

Do not use wood treated with creosote or pentachlorophenol in the interiors of farm buildings where there may be direct contact with domestic animals or livestock which may crib (bite) or lick the wood.

Do not use creosote or pentachlorophenol treated wood for farrowing or brooding facilities.

Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such sites would be structures or containers for storing silage or food.

Do not use treated wood for counter tops or cutting boards.

Only treated wood that is visibly clean and free of surface residue should be used for patios, decks, and walkways.

Do not use treated wood for construction of those portions of beehives which may come into contact with the honey.

Do not use any treated wood where it may come into direct or indirect contact with public drinking water. Do not use creosote or pentachlorophenol treated wood where it may come in contact with drinking water for domestic animals or livestock. Exceptions may be made for uses involving incidental contact such as docks or bridges.

Do not use logs treated with pentachlorophenol for log homes.

Avoid frequent or prolonged skin contact with creosote or pentachlorophenol treated wood. When handling the treated wood wear tightly-woven coveralls and use gloves impervious to the chemicals (for example, gloves that are vinyl-coated).

Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask and wear goggles to protect eyes from flying particles. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood.

Wash exposed areas thoroughly after contact with treated wood. After handling treated wood, always wash before eating, drinking, or using tobacco products.

If wood preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

Coat tar pitch and coal tar pitch emulsion are effective sealers for creosote treated wood block flooring. Urethane, epoxy, and shellac are acceptable sealers for all creosote treated wood. Urethane, shellac, latex epoxy enamel and varnish are effective sealers for all pentachlorophenol treated wood.

**Acknowledgment of receipt of Consumer Information Sheet and that information was read and understood.**

I, \_\_\_\_\_ have read and understand the information in the Consumer Information Sheet on Treated Wood Poles. I understand that the wood preservatives may cause adverse effects on human and animal health, and can adversely affect groundwater and surface waters. In addition, I agree to use the wood poles in a manner consistent with protection of human and animal health; and water resources.

\_\_\_\_\_  
(Signature of person receiving and using poles)

\_\_\_\_\_  
(Date)

**APPENDIX J**

**STATE SPILL RESPONSE CONTACTS**

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**APPENDIX J**  
**STATE SPILL RESPONSE CONTACTS**  
**(Current as of September 1999)**

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<u>State</u>	<u>Agency</u>	<u>Phone No.</u>
Arizona	Dept. of Env. Quality	602-257-2330
California	Office of Emergency Services	1-800-852-7550 or 916-262-1621
Colorado	Dept. of Emergency Response	303-756-4455
Iowa	Dept. of Nat. Resources Emergency Response	515-281-8694
Kansas	Dept. of Health and Environment	785-296-1679 (business hrs) 785-296-0614 (eve, weekend, holidays)
Minnesota	Pollution Control Agency	651-649-5451 or 1-800-422-0798
Montana	Disaster and Emergency Services	406-841-3911
Nebraska	Dept. of Env. Quality	402-471-4230
Nevada	Div. of Emergency Management	775-687-4240 (business hrs.) 775-687-5300 (eve, weekend, holidays)
New Mexico	State Police	505-827-9329
North Dakota	State Radio/Dept. of Health	1-800-472-2121
South Dakota	Div. of Emergency Management	605-773-3231

<u>State</u>	<u>Agency</u>	<u>Phone No.</u>
Texas	Natural Resource Conservation Commission	512-239-2507 or 512-463-7727
Utah	DEQ-Div. of Env. Response and Remediation	801-536-4123
Wyoming	Dept. of Env. Quality - Water Quality Division	307-777-7781

Note: In cases of transportation spills (or if receive no answer at agency number), can also contact State Police/State Public Safety Department.

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\* These phone numbers may change frequently.

**APPENDIX K**

**PRAIRIE DOG VACUUMING INFORMATION**

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## SERVICES PROVIDED

- Environmentally safe prairie dog removal
- Disposal or relocation of captured animals
- Education about handling future problems

# Dog Gone

Environmentally  
Safe  
Rodent Control

(970) 565-9878

Gay Balfour & Dave Honaker  
36 North Madison  
Cortez, Colorado 81321



## ABOUT US

Dog Gone is an environmentally safe vacuum system of rodent control. Prairie dogs are removed from their burrows via air conveyance.

The Dog Gone system has been tested and proved in 5 years of operation. The process involves no shooting or poisoning. The mortality rate is extremely low. Animals can be relocated to alternate locations because they are not harmed. If other burrowing animals are caught, they can be quickly released to return to their homes. The service also includes disposal, if desired.

Gay Balfour and Dave Honaker, co-owners of Dog Gone, will provide education about how to handle any future "invasions" of prairie dogs before a large scale effort is needed.

Many customers have expressed appreciation for this unique process that is considerate of your neighbors and never harms the environment.

Unfortunately, we cannot guarantee to catch ALL the prairie dogs on your location, but our success rate is excellent between spring and fall, when the critters are most active.

## SATISFIED CUSTOMERS

Dog Gone has developed a long list of satisfied customers, including...

- Kaiser Permanente
- Graebel Companies
- North American Salt
- Walmart
- Miller Ranches

...at locations in Colorado, Kansas, New Mexico, Arizona, Ohio, Nebraska—wherever there's a problem!

Dog Gone will gladly provide a list of references upon request.



## FEE SCHEDULE

Equipment mobilization/demobilization: (roundtrip mileage from Cortez, Colorado, to your location—to be paid in advance)

\$1.50 per mile

plus

Daily rate: (we never work less than 8 hours a day!)

\$1,000 per day

Payment in full is expected upon completion of job.



**APPENDIX L**  
**INFORMATION ON BIRD/ANIMAL**  
**CONTROL PRODUCTS**

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# Nixalite® Bird and Animal Control Products

## Why Use Nixalite?

### It Works!

Nixalite Stainless Steel Needle Strips provide a common sense solution to bird control problems. Nixalite effectively repels birds ranging in size from sparrows to vultures.

### Humane Control

Nixalite has been approved by the United States Humane Society for use on projects where environmental and ecological impact is the chief concern. Nixalite does not harm birds, it simply prevents them from landing on the protected surfaces.

### Versatile

Nixalite is the most flexible and adaptable control available. It has been installed successfully on all kinds of shapes and surface materials.

### Climbing Animal Control

Nixalite is an excellent barrier to climbing animals such as squirrels, raccoons, cats, opossums, even human intruders. Stop pests from climbing gutters, feeder poles, fences and trees.

### Inconspicuous

The thin stainless steel wires of the Nixalite are invisible at normal viewing distances. Nixalite's color powder coat option makes the Nixalite strips even more inconspicuous.

### Service

Almost 50 years of experience in bird and nuisance animal control qualifies us as leaders in this specialized field. Nixalite makes this experience available through free services that include estimates, quotations, computer generated shop drawings, new part engineering, etc..

### Need Help?

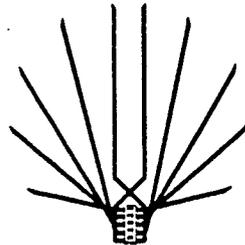
Call, fax or e-mail Nixalite your questions or comments. Our business hours are 8:00 a.m. to 4:30 p.m. CST - Monday through Friday.

Ph: 800/624-1189 or 309/755-8771  
 Fax: 800/624-1196 or 309/755-0077  
 E-mail: nixalite@qconline.com  
 Website: <http://www.nixalite.com>



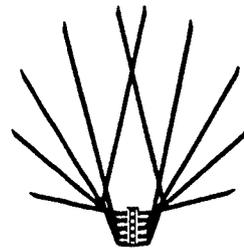
## Nixalite® Stainless Steel Needle Strips

Model S Nixalite



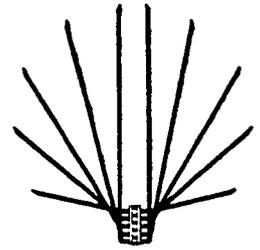
For small birds, swallows, pigeons and seagulls. Excellent climbing animal and human intruder deterrent.

Model L Nixalite



Used for pigeons and seagulls only. Not used for small birds. Excellent human intruder deterrent.

Model N Nixalite



For pigeons, mud swallows and large birds. Excellent climbing animal and human intruder deterrent.

Model H Nixalite



Half row model for ledges less than 2" deep and in conjunction with models S, L and N Nixalite to achieve proper row spacing on wider surfaces.

Model W Nixalite



Wall mount barrier for vertical surfaces. Used above ledges less than 2" deep or above other Nixalite models. Excellent barrier to climbing animals.

## Nixalite Prices

All Nixalite models are the same price.

8' starter kit \$46.00  
 Minimum Nixalite strip order. Includes shipping

9' - 99' \$4.92/ft  
 100'/up \$4.41/ft

Price per foot does not include shipping. Call for shipping charges. Tax collected for Illinois. All prices are U.S. funds.

## Nixalite Options and Packages

### Nixalite Installation Pack

All the accessories you may need for a Nixalite strip installation. You get all of the the following items for one low price:

- Installation Tool
- Wire Tying Tool
- 8oz. Microsan soap
- Nixalite Video
- Tube adhesive
- 72 Anchors
- 72 Screws
- 72 Drive Screws
- Cutting Tool
- Pint Steri-Fab
- Microsan lotion
- Nixalite T-shirt
- 72 Clips
- 72 Nails
- 72 Washers
- 72 18" Wire Ties

Installation Pack \$109.86  
 Includes shipping to continental U.S.

### Nixalite ColorCoat™

A new powder coat process applies a tough, long lasting color coating to the Nixalite strips. Custom colors and color matching available. Call for delivery time. ColorCoat charges are added to the Nixalite strip cost. There is a \$75.00 minimum ColorCoat charge.

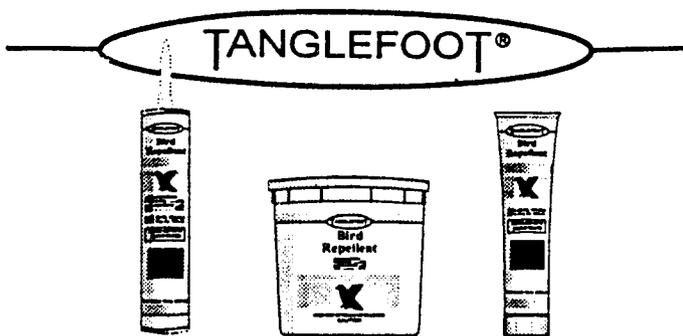
Colorcoat™ \$1.25 per foot

### Custom Forms by Nixalite

Nixalite manufactures a wide variety of custom stainless steel forms to fasten the Nixalite strips to difficult surfaces such as I-beams, angle iron and clay roofing tiles. Call for information.

Minimum order, not including shipping, is \$30.00 on all products except the NIXALITE Needle Strips.





## Stop Bird Roosting with Tanglefoot Bird Repellent

Tanglefoot Bird Repellent is a non-drying, non-toxic compound which adheres to all types of surfaces while remaining sticky. Tanglefoot Bird Repellent is effective in repelling birds for up to a year in normal conditions.

Item #	Description	Coverage	Price	Shipping*
TF Cart	Cartridge	10 lin. ft.	\$ 8.00	\$ 4.79
TF Case	Case (24 Cart.)	240 lin. ft.	180.00	13.46
TF 4.5#	4 1/2 lb. Pail	72 lin. ft.	35.00	5.65
TF Tube	Squeeze tube	5 lin. ft.	5.00	4.79

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.

## Bird Scare Predator Eyes

Inflatable devices that create a predatory presence with staring eyes and bright colors. Quiet, non-toxic and safe spot control for pest birds. Available in black and yellow, specify when ordering.



### Scare Eye Bracket

This 24" long, aluminum bracket provides simple mounting to almost any surface with the provided screws.

Item #	Description	Price
Scare Eye	Scare Eye balloon	\$ 18.00
Scare Eye Brkt	Scare Eye mounting bracket	18.00

\*Shipping Charges - included for continental 48 United States only. AK. and HI. call for additional shipping charges.

Repel with  
**ROPEL®**

## ROPEL Repellents. Simple, Safe, Quiet.

### Animal, Rodent and Bird Repellent

ROPEL combines a bitter and vile tasting substance with a special non-toxic solvent system that allows it to adhere to many different surfaces. ROPEL is safe when used as directed.

Item #	Description	Size Ea.	Price	Shipping*
Ropel Q	Spray bottle	Quart	\$ 15.00	\$ 5.65
Ropel G	Jug	Gallon	50.00	6.98
Ropel 5G	Bulk container	5 Gallon	200.00	26.31

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.

### Garbage Ropel

Specifically designed to adhere to plastic surfaces. Treat garbage bags, cans and plastic dumpsters effectively. Stop nuisance pests from raiding garbage. Non-Toxic.

Item #	Description	Size Ea.	Price	Shipping*
Ropel 32oz.	Spray bottle	32 fl.oz.	\$ 15.00	\$ 5.65
Ropel 64oz.	Jug with sprayer	64 fl.oz.	30.00	6.98

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.

### Ropel Lawn & Garden Protector

Granular odor barrier. Proven aromatic barrier against destructive and odorous violation (excrement, urine, waste, etc.) of lawns, flower gardens, hedges, trees and shrubs.

Item #	Description	Size Ea.	Price	Shipping*
Ropel L&G	L&G jug	3.25 lb. jug	\$ 10.00	\$ 5.65

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.



## ReJeX-iT® Bird Aversion Agent - AG-36

### Repellent Spray for Geese and Other Birds.

#### Coverage rates:

1 qt. = 1 gal. mix = 4,000 sq. ft.  
1 gal. = 4 gal. mix = 16,000 sq. ft.  
5 gal. = 20 gal. mix = 87,000 sq. ft.

ReJeX-iT makes grass unpalatable to geese and other grazing birds, helping reduce turf and property damage. Mixed with water, ReJeX-iT can reduce geese populations with as little as one application. EPA registered for continental 48 United States.

Item #	Description	Size Ea.	Price	Shipping*
ReJeX-Q	Quart bottle	Quart	\$ 24.00	\$ 5.65
ReJeX-G	Gallon Jug	Gallon	80.00	6.98
ReJeX-5G	Bulk Pail	5 Gallon	349.00	26.31

\*Shipping Charges - UPS ground rates for continental 48 United States only. Not available in AK. or HI.

# Web-Away™

## Prevents the Formation of Cobwebs and Mud Nests.

The all natural, non-toxic and biodegradable web and mud nest preventer. Usable indoors and out, Web-Away helps break up cobwebs and mud nests making them easier to remove. Web-Away then helps prevent them from reforming on treated surfaces.

Item #	Description	Size Ea.	Price	Shipping*
Web-Away Q	Spray bottle	Quart	\$ 15.00	\$ 5.65
Web-Away G	Jug	Gallon	50.00	6.98

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.



## Microsan™ Skin Care Systems **New!**

A high potency, anti-bacterial, anti-fungal and anti-yeast skin cleanser and moisturizer that provides residual anti-microbial activity for continued protection between uses. Use Microsan before and after cleaning bird droppings to help eliminate disease transmittal.

Item #	Description	Size Ea.	Price	Shipping*
Hand soap 8	Pump bottle	8 oz.	\$ 10.95	\$ 4.38
Hand soap 16	Soap refill	16 oz.	16.95	4.79
Hand lotion 4	Squeeze bottle	4 oz.	10.95	4.38

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.

## Microsan™ Field Pack

Contains 2 - 8 oz. soap pump bottles, 1 - 16 oz. soap refill and 2 - 4 oz. lotion squeeze bottles for one low price.

**Save \$17.00**

Item #	Description	Price	Shipping*
MicrosanPack	Field Pack	\$ 49.95	\$ 9.11

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.

# STERI-FAB

## 9-Way Protection Against **New!** Insects, Germs and Odors.

Steri-Fab is a multi-purpose, wide spectrum, sanitizing spray that is safe and easy to use. Steri-Fab is a bactericide, sanitizer, fungicide, mildewicide, insecticide, deodorant, germicide, viricide and disinfectant that is EPA approved. Use Steri-Fab on bird droppings to help neutralize harmful bacteria and allow for safe waste removal. Steri-Fab has been tested and found effective against the following organisms:

### Viruses, bacteria, fungi:

Salmonella choleraesuis  
Staphylococcus aureus  
Vaccinia virus

Pseudomonas aeruginosa  
Herpes Simplex II  
Aspergillus niger

### Insects:

Fleas Ticks Roaches Mites Silverfish Termites Sowbugs

One gallon of Steri-Fab will cover 1,500 sq.ft.

Item #	Description	Size Ea.	Price	Shipping*
Sterifab P	Steri-Fab spray	Pint	\$ 9.95	\$ 5.14
Sterifab G	Steri-Fab spray	Gallon	30.00	6.98

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates. Sold only in the U.S.A.



## SNAKE-A-WAY® SNAKE REPELLENT

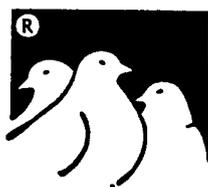


Dr. T's Snake-A-Way snake repellent is the only E.P.A. approved, University tested and patented snake repellent on the market today. When applied as directed, it is safe to humans, pets and the environment. Snake-A-Way can remain effective for up to two months in all types of weather.

Item #	Description	Price	Shipping*
DrT 1.75	1.75 lb. canister	\$ 10.89	\$ 5.14
DrT 4	4 lb. canister	19.91	5.65
DrT 32	32 lb. canister	125.72	20.00

\*Shipping Charges - UPS ground rates for continental 48 United States only. AK. and HI. call for shipping rates.

Minimum order, not including shipping, is \$ 30.00 on all products except the NIXALITE Needle Strips.



**Nixalite®** of America Inc  
1025 16th Avenue - P.O. Box 727  
East Moline, IL. 61244-0727  
Experts In Bird Control Since 1950

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Ph: 800/624-1189 Ph: 309/755-8771  
Fax: 800/624-1196 Fax: 309/755-0077  
E-mail: nixalite@aonline.com  
Website: <http://www.nixalite.com>

# Tanglefoot® Bird Repellent



## What is Tanglefoot?

Tanglefoot Bird Repellent is a non-drying, non-toxic compound which adheres to all types of surfaces while remaining sticky. Tanglefoot effectively repels all types of birds.

## Before you start

Apply Tanglefoot only to clean, dry surfaces.

Tanglefoot can last 2 months to 2 years depending on the environment around the application. Excessive airborne dust, bugs and debris can reduce effectiveness and longevity.

Protect application surfaces with waterproof tape or sealer before application. This makes removal easier and will help prevent surface staining.

## Cartridge Application

### Large Birds:

For large birds such as pigeons and starlings, apply a 1/4" bead. Cut the cartridge tip at the 1/4" mark and follow the recommended bead spacing.

Bead spacing: on small ledges apply one bead, 1" from the outer edge. For larger surfaces apply several such beads 2 to 3" apart or two lines joined by "S" shaped lines. Leave 1" gap in bead every three feet to permit water drainage.

### Small Birds:

For small birds cut the cartridge tip at the 1/8" mark to ensure the correct size bead.

Bead spacing: on small ledges apply one bead 1" from the outer edge. For larger surfaces apply additional beads 2" apart or two lines joined by "S" shaped lines. Leave 1" gap in bead every three feet to permit water drainage.

## Bulk Application

### Option #1 - Reusable Cartridges

Transfer the Tanglefoot into a reusable cartridge and follow the cartridge instructions provided.

### Option #2 - Trowel

Use a flat bladed instrument, such as a trowel or scraper to apply the Tanglefoot to the surface. **DO NOT COVER THE ENTIRE SURFACE.** Leave gaps to allow water runoff. **DO NOT EXCEED 1/16" THICKNESS** when using this method.

## Things to know

Never completely cover any surface with Tanglefoot (do not apply like you're "icing a cake") as this can result in birds getting stuck to the surface and may cause injury to the bird.

**IT IS CRITICAL THAT YOU DO NOT APPLY EXCESSIVE AMOUNTS OF TANGLEFOOT.**

Do not apply Tanglefoot to steeply angled or vertical surfaces as slumping may occur.

One standard Tanglefoot cartridge will yield about 40 feet of 1/4" bead.

Use Mineral Spirits to help clean Tanglefoot from tools and application surfaces.

Tanglefoot is non-toxic and environmentally safe.

Tanglefoot remains effective from 40 degrees F. (4 C.) to 100 degrees F. (38 C.).



Ph:800/624-1189 Fax:800/624-1196  
Website - <http://www.nixalite.com>  
E-mail - [nixalite@qconline.com](mailto:nixalite@qconline.com)



**Nixalite®**  
**Bird Control**

# Stainless Steel Needle Strips

## SINCE 1950 . . .

Nixalite® of America Inc has manufactured the best bird control in the industry. Nixalite® of America Inc is a second and third generation, family owned and operated company with employees that have decades of experience in the bird control field. This experience and pride shows in both the superior product and the wealth of information available to Nixalite® customers.

This original porcupine wire called Nixalite® is an exclusive development of Nixalite® of America Inc. It provides a simple, direct and humane solution to bird control problems.

These stainless steel needle strips are long lasting, easy to install and virtually maintenance free. The fine stainless steel wire construction allow the strips to blend in with the surroundings and not detract from the structures design.

Nixalite® effectively repels birds ranging in size from sparrows to vultures, including pigeons, starlings, seagulls and swallows. Nixalite® can be used to discourage climbing on fences, walls, trees and poles by animals and makes an excellent human intruder deterrent.

Nixalite® is approved by leading humane and bird societies because it causes no harm to the birds. It works simply by preventing landing and roosting on the protected structure.

The effectiveness and versatility of Nixalite® is proven by worldwide installations. Architects specify Nixalite® for new, existing, historical and renovation projects because they can depend on its reliability.

## Specifications for Models S, L, N, H, and W

**Material** 302 stainless steel  
**Base Strip** 1/4" (0.7 cm) wide, flexible

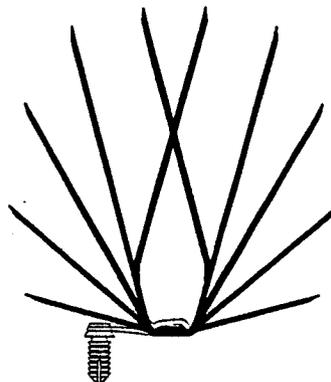
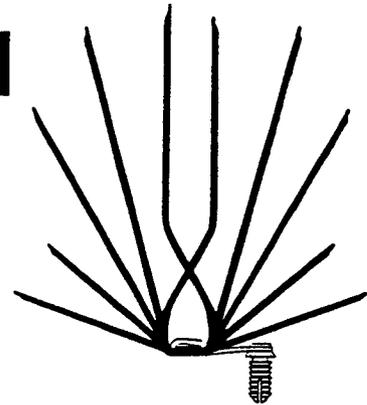
**Lengths** 48" (122 cm) 24" (61.0 cm)  
16" (40.6 cm) 12" (30.5 cm)



### Model S Nixalite®

Used for small birds, swallows, pigeons, and seagulls. Excellent human intruder deterrent.

**Width** 4" (10.2 cm)  
**Height** 3 3/4" (9.5 cm)  
**Needles** 120 per 12" (30.5 cm)



### Model L Nixalite®

Used for pigeons and seagulls. Excellent human intruder deterrent.

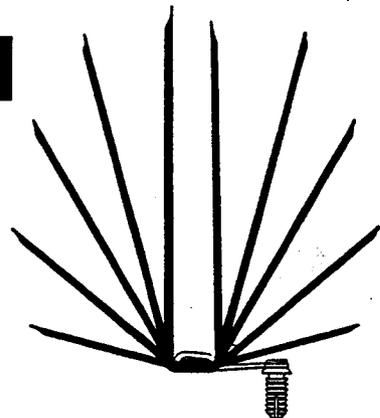
**Width** 4" (10.2 cm)  
**Height** 3 3/4" (9.5 cm)  
**Needles** 120 per 12" (30.5 cm)



### Model N Nixalite®

Used for pigeons, mud swallows, vultures, large birds, etc. Excellent human intruder deterrent.

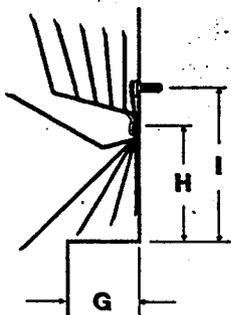
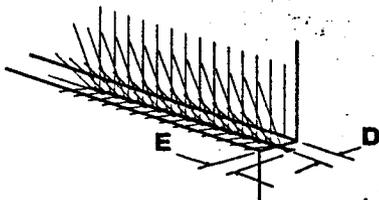
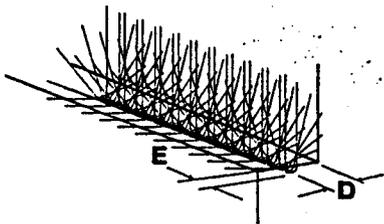
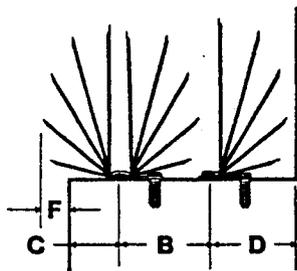
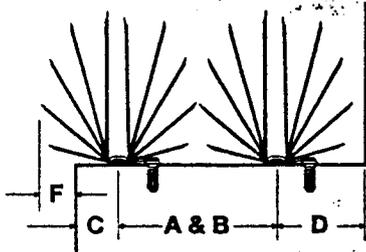
**Width** 4" (10.2 cm)  
**Height** 3 3/4" (9.5 cm)  
**Needles** 120 per 12" (30.5 cm)





# How much do I need ?

## Space-i-Fication Drawings



To determine the quantity of Nixalite® needed, carefully measure the depth and length of the surface. Take these dimensions and refer to the Surface Depth Specification Charts shown below. The total of Nixalite® required (T), is found by multiplying the row or rows required for the surface depth (RR) by the length of the surface (L). (RR x L = T)



## Surface Depth Specification Charts

Single Exposed Buildings & Window ledges etc.		
Surface Depth		Rows
Inches	Centimeters	Required
0 - 2	0 - 5.1	1/2* row
2 - 4	5.2 - 10.2	1 row**
4 1/4 - 6	10.3 - 15.3	1 1/2 rows
6 1/4 - 9	15.4 - 22.9	2 rows
9 1/4 - 14	23.0 - 35.6	3 rows
14 1/4 - 19	35.7 - 48.3	4 rows
19 1/4 - 24	48.4 - 61.0	5 rows
24 1/4 - 29	61.1 - 73.7	6 rows
29 1/4 - 34	73.8 - 86.4	7 rows
34 1/4 - 39	86.5 - 99.1	8 rows
39 1/4 - 44	99.2 - 111.8	9 rows
44 1/4 - 49	111.9 - 124.5	10 rows

Double Exposed Parapets, Beams, Pole Signs, etc.		
Surface Depth		Rows
Inches	Centimeters	Required
0 - 3 1/2	0 - 8.9	1** row
3 3/4 - 5	9.0 - 12.7	1 1/2 rows
5 1/4 - 7 1/2	12.8 - 19.1	2 rows
7 3/4 - 12 1/2	19.2 - 31.8	3 rows
12 3/4 - 17 1/2	31.9 - 44.5	4 rows
17 3/4 - 22 1/2	44.6 - 57.2	5 rows
22 3/4 - 27 1/2	57.3 - 69.9	6 rows
27 3/4 - 32 1/2	70.0 - 82.6	7 rows
32 3/4 - 37 1/2	82.7 - 95.3	8 rows
37 3/4 - 42 1/2	95.4 - 108.0	9 rows
42 3/4 - 47 1/2	108.1 - 120.7	10 rows
47 3/4 - 52 1/2	120.8 - 133.4	11 rows

\* 1/2 row indicates the use of Model H Nixalite®.

\*\* 1 row or any whole numbers indicate the use of Models N, L or S Nixalite®.

# How do I space it ?

Now that you know how much Nixalite® will be needed, you need to know how to space the Nixalite® strips on the surface. Nixalite® Space-i-Fications provide simple rules and tolerances for positioning the Nixalite® strips on the surface. See drawings A through I for illustrations.



## Nixalite® Space-i-Fication Charts

<b>A</b> Always measure from the middle of the base strip
<b>B</b> 5" (12.7 cm) max. and 3 1/2" (8.9 cm) min. between models N, L and S Nixalite®. 2 1/2" (6.4 cm) max. and 2" (5.1 cm) min. between model H and models N, L or S Nixalite®.
<b>C</b> 1 1/4" (3.2 cm) max. from the outside edge to the base strip of the first row for models N, L and S Nixalite®.
<b>D</b> 2 3/4" (7.0 cm) max. from inside wall to base strip for models N, L and S, 3/4" (1.9 cm) max. from inside wall to base strip for model H Nixalite®.
<b>E</b> Extend Nixalite® base strip at least 1/2" (1.3 cm) over ends of surface.
<b>F</b> Nixalite® needles must extend over the outside edge at least 1/2" (1.3 cm).
<b>G</b> Model W has a max. 2" (5.1 cm) surface width coverage.
<b>H</b> Position Model W a max. of 2 3/4" (7.0 cm) vertical distance from installation surface.
<b>I</b> Clips fastened 7/8" (2.2 cm) above the base strip of Model W.

# Installation

Careful thought and planning are required to make the installation successful. For best results, carefully read Nixalite® of America Inc's written installation instructions and recommended procedures brochure. To obtain the brochures, call 1-800-624-1189 or fax the Lit Facts By Fax line at 1-800-624-1196.

## Remember These Rules:

**Cutting** — Each piece of Nixalite® installed must fit the surface properly. Cut the Nixalite® strip to the needed length with a pair of sheet metal snips. The Nixalite® must be securely fastened to the installation surface using the correct amount of mounting hardware for the length of strip. Do not cut the strip too short or too long.

**Fitting** — A Nixalite® strip must be in contact with the installation surface for it's entire length except where it overhangs the ends of a surface by 1/2". There must not be any end-to-end gap between two pieces of Nixalite® in a row, or a gap between an object and the end of the strip. The strip must closely follow the contour or angle of the installation surface. Make sure the rows of Nixalite® are uniform in appearance and clean.

**Curves** — When installing Nixalite® strips on an inside or outside diameter, run the strips of Nixalite® front-to-back. The strips should cover at least 180 degrees of the diameter. Use a piece of Model W Nixalite® as an "end-cap" if necessary.

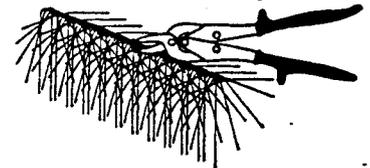
**Corners** — When two strips of Nixalite® meet at an outside or inside corner, the first strip extends 1/2" over the end of the surface or abuts a wall. The second strip should stop 2 1/2" from the base strip of the first strip.

## Don't Forget To...

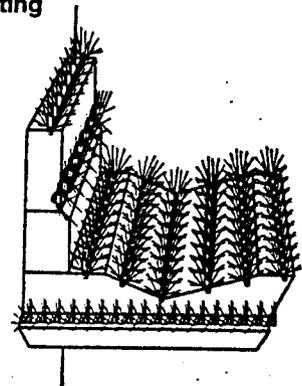
- Study the structure carefully and find all problem areas.
- Identify the problem birds or climbing animals.
- Take accurate dimensions of the installation surfaces.
- Use the Space-i-Fication charts to determine the quantity and spacing of the Nixalite® strips.
- Determine which model or models best suit the installation and order the appropriate amount of Nixalite® strips.
- Call 1-800-624-1189 and ask for technical assistance if you have any questions.
- Make sure the installation surface is clean and dry. Remove all bird droppings and overhanging foliage.
- Measure for the mounting hardware positions and fasten the appropriate hardware to the surface.
- Install the Nixalite® strips into the secured mounting hardware.
- Set up a bi-annual inspection to check the mounting system and for debris in the Nixalite®.

### Installation Rules

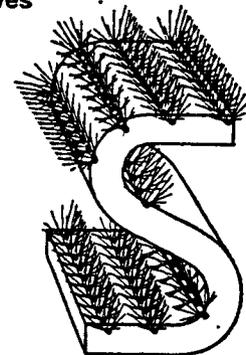
#### Cutting



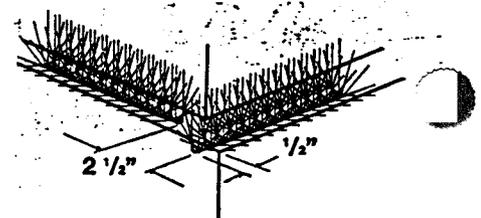
#### Fitting



#### Curves

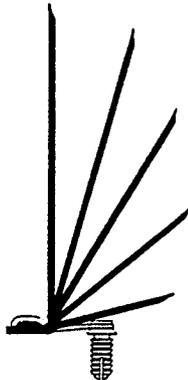


#### Corners



## NIXALITE® Architectural Bird Control

Effective long lasting protection from bird defacement for any structure.  
Approved for Heritage and Historical Buildings.



### Model H Nixalite®

Half-row model used for small ledges less than 2 inches in depth and in conjunction with models N, L and S to achieve proper spacing.

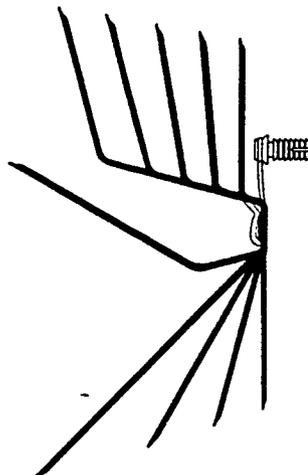
Width 2" (5.1 cm)  
Height 3 3/4" (9.5 cm)  
Needles 60 per 12" (30.5 cm)



### Model W Nixalite®

Wall mount barrier for vertical surfaces. Used above narrow ledges less than 2 inches in depth or above other Nixalite® strips in specific conditions. Excellent for use on columns and angled or sloping surfaces.

Width 3" (7.6 cm)  
Height 5 1/2" (14.0 cm)  
Needles 120 per 12" (30.5 cm)



### Colorful Nixalite® Option

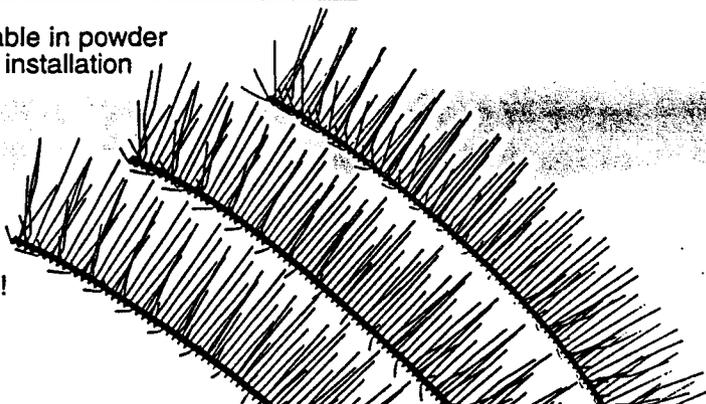
Nixalite® strips are available in powder coat colors to match the installation surface.

Available colors:

Black	White
Grey	Red
Tan	Green
Blue	Bronze

Custom Colors Available!

For more information, call 800/624-1189.



### General Specifications (CSI Format)

Fill in the Nixalite® Model Information

#### GENERAL

##### 1.1 DESCRIPTION

1.1.1 Install Nixalite® strips to prevent birds from landing on specified surfaces.

##### 1.2 QUALITY ASSURANCE

1.2.1 Obtain all installation information from manufacturer.

1.2.2 Use workers completely familiar with Nixalite® installations.

##### 1.3 SUBMITTALS

1.3.1 Submit all descriptive information from manufacturer.

##### 1.4 PRODUCT HANDLING

1.4.1 Protect Nixalite® strips from damage before, during and after the installation.

#### PRODUCTS

##### 2.1 ACCEPTABLE AMANUFACTURER

2.1.1 NIXALITE® OF AMERICA INC  
1025 16th AVE - P.O. Box 727  
East, Moline IL. 61244-0727  
800/624-1189 Fax 800/624-1196

##### 2.2 MODEL DESIGNATION

2.2.1 Model \_\_\_\_\_ Nixalite®  
Material : 302 Stainless Steel  
Width : \_\_\_\_\_  
Height : \_\_\_\_\_  
Base Strip: 1/4" (0.7 cm) wide, flexible  
Needles : \_\_\_\_\_  
Lengths : \_\_\_\_\_

##### 2.3 MOUNTING SYSTEMS

2.3.1 Stainless Steel Mounting Clips and hardware as specified by manufacturer

#### EXECUTION

##### 3.1 EXAMINATION

3.1.1 Examine work area, note any detrimental work conditions  
3.1.2 Do not proceed until conditions are corrected

##### 3.2 SURFACE PREPARATION

3.2.1 Clean surface thoroughly before work.

Remove bird dung if present.

3.2.2 Remove all overhanging foliage

##### 3.3 INSTALLATION

3.3.1 Install Nixalite® in accordance with manufacturers installation brochures

3.3.2 Nixalite® must cover the entire depth of surface, not just perimeter. Cut strips to follow all angles and contours closely

3.3.3 Nixalite® strips must be tangent to the surface, uniform in appearance and have no end-to-end gaps. Refer to the Surface Depth charts and Space-i-fications in manufacturers brochures.

##### 3.4 INSPECTION

3.4.1 Visually inspect Nixalite® for debris. Inspect mounting system.

## Special Services

Occasionally, there are Nixalite® strip installations that require on-site improvisation. The shape, condition or composition of the installation surface may require alternate fastening methods. This can range from an adhesive installation to the fabrication of special forms. After nearly 50 years, Nixalite® can recognize these special applications and provide recommendations before problems arise. Examples of special services (not limited to):

### Custom Form Design and Fabrication

Nixalite® can design special forms to aid in the fastening of the Nixalite® strips to difficult surfaces. A couple of examples are the I-Beam Clamp and the Ridge Caps that are now regular installation accessories.

### Mounting Hardware Templates

When working with identical, repetitive or long uninterrupted surfaces, a template marking where the mounting hardware goes, speeds installation by eliminating layout time. Nixalite® of America Inc can supply plans for making the template.

### Special Procedure Instructions

For out-of-the-ordinary installations, special instructions may be needed. Nixalite® can provide installation instruction for almost any situation. If you are not sure how to go about an installation, call 1-800-624-1189 and just say "help".

## Planning Services

Nixalite® of America Inc is unique in the bird and climbing animal control industry because of the many services made available to the customer.



## Drawings, Estimates, Quotes, etc..

### Architects and Engineers

Send Nixalite® your blueprints or provide accurate dimensions and let us do the Nixalite® layout and specifications for you. This assures proper bidding on projects when contractors know exactly what is needed and where. There is no fee for these services.

### Contractors

Call our Planning Department to get working drawings, shop sketches, mechanicals, quotations, etc. Please have accurate dimensions ready when you call. There is no fee for these services.

### Property/Home owners

Our recommendations and full planning services are just a phone call away. Call for our recommendations.

### On-Site Consultation

On site consultation by a Nixalite® representative may be arranged, but there is a charge for this service.



## Installation and Promotional Video

Nixalite® of America Inc has a video that combines an installation overview and a promotional feature to familiarize people with Nixalite® strips and some of the basic procedures. Call for more information.

### Nixalite® Problem Solvers

When the US Coast Guard had trouble with seagulls blotting out solar panels that powered solar buoys, they called Nixalite® of America Inc. Nixalite's planning department designed a simple yet effective form that fastened the Nixalite® strips to the buoy without touching the delicate photocells. Since that time the Coast Guard has widened its delivery of Nixalite® to include Coast Guard Cutters.

Northeast Utilities inquired about a system of control for birds and climbing animals. It seems that these troublesome pests were setting up housekeeping in their substations and occasionally damaging electrical equipment. Nixalite® recommended using the needle strips to keep birds off of specific hardware and as a barrier for fence perimeters to keep out climbing pests. After a trial installation, Northeast Utilities "Nixalized" the substations.

Sometimes Nixalite® is used to protect endangered animals from other predatory animals. The US Humane Society in conjunction with the Bureau of Land Management asked Nixalite® of America Inc. to help with an unusual problem. The endangered desert tortoise, found in the desert southwest United States, was under attack from marauding ravens. Nixalite® installed its needle strips on the prominent perches and the border fence of the reserve, keeping the ravens from using the perches for hunting the endangered tortoise.