

# Earthfire Vaporizing Aerosol

**Formicine Insecticide With Synthrin®**  
**1% Thermal Fogging Aerosol**  
**For Use Only as a Thermal Fogger for Subsurface Injection**

**A Synthetic Pyrethroid for the Control and Eradication of The Imported Fire Ant of the Genus Solenopsis**

**Active Ingredient:**

*Resmethrin (CAS No. 10453-86-8) .....	1%
<b>Other Ingredients**</b> .....	<u>99%</u>
<b>Total</b> .....	<u>100%</u>

\*Cis/trans isomers ratio: Max. 30% (±)cis and min. 70% (±) trans.

\*\*Contains aromatic hydrocarbon

**Keep Out of Reach of Children**  
**CAUTION**  
See side panel for additional  
precautionary statements

EPA Reg. No. 62331-2

EPA Est. \_\_\_\_\_

**Net Contents:**  
**1 Pint (0.47 Liters) Gross Wt. 16.1 oz. Net Wt. 13.0 oz.**

**Invicta LLC**  
466 Duchamp Drive  
Nokomis, FL 34275-3508  
(941) 966-8021

**ACCEPTED**

SEP 3 2003

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 62331-2

Synthrin – Registered Trademark of Valent Biosciences Corporation

For Use Exclusively with  
**The Eradicator®**  
Fire Ant Eradication System

{Side Panel(s)}

### DIRECTIONS FOR USE

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

For Use Only in Subsurface Injection as a Thermal Fog.  
Not For Use as an Open Air Fog or Aerosol.  
Only For Outdoor Use.

**Thermal Application:** For the control and eradication of the Imported Fire Ant by direct injection into the mound and subsurface colony wherever found. This formulation is to be used as is in only the Eradicator® Injection-system, a Subsurface Thermal Fogging Injector System.

This product and the identified equipment is not to be used by private individuals for personal domestic application. It is to be used only by those persons who have been trained and certified by Invicta LLC or their representatives.

### Preparation

1. Screw propane into propane receptacle.
2. Screw Earthfire Vaporizing Aerosol canister into canister receptacle.
3. Fill vaporizing coils by pushing actuator. Check for leaks before igniting chamber.
4. Ignite the vaporizing fuel by pressing ignition button on Sure Fire™ Ignitor – when burning press lock-on button (see Directions for Use Manual). Wait at least three (3) minutes for coils to reach maximum temperature – test by pulling trigger – if ready there will be a cloud of dry, white vapor (smoke) ejected. **This vapor is highly flammable! Never**

**fire a burst upwind of vaporizing coil. Do not breathe this vapor. Users must wear a NIOSH/MSHA approved respirator.**

**Injection**

**Note:** Due to the wide variety of soil types and soil water content, you may find that by slight adjustment of the following techniques, you will produce the best results for your area.

1. Begin injection by inserting lance tip into the mound three (3) to five (5) inches. Withdraw the lance tip about one (1) inch. Pull the trigger. If proper insertion has been made, the vapor will be forcefully drawn into the colony. Continue holding down the trigger until thick, white vapor comes out of the mound over its entire surface – not just the injection hole. You have now filled the entire colony. If you do not get these results, repeat the procedure in different locations on the mound until it is completely filled with vapor. Hold the trigger down for about three (3) seconds during each injection.
2. When you see vapor coming to the surface, you have filled this section of the mound. Move to another injection site on the mound and repeat process.

For detailed instructions, refer to your Directions for Use Manual. If you do not have one contact:  
Invicta LLC, 466 Duchamp Drive, Nokomis, FL 34275-3508 (941) 966-8021

**Storage and Disposal**

**Storage:** Store in a cool, dry place inaccessible to children and pets away from heat or open flame. **Disposal:** This container may be recycled in the few but growing number of communities where (steel) aerosol can recycling is available. Before offering for recycling, empty the can by using the product according to the label. (DO NOT PUNCTURE!) If recycling is not available, wrap the container in several layers of newspaper and discard in trash.

**PRECAUTIONARY STATEMENTS  
Hazards to Humans & Domestic Animals**

**CAUTION**

Harmful if swallowed or inhaled. Avoid breathing vapor. Avoid contact with skin, eyes or clothing. Wear mask or respirator of a type recommended by NIOSH (National Institute for Occupational Safety or Health) to give adequate protection against this material. Wear protective clothing. Thoroughly wash with soap and water after handling. Wash all contaminated clothing with soap and water, separately from other clothing, before reuse.

**First Aid**

<b>If Swallowed</b>	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give <b>any</b> liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If Inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing call 911 or an ambulance, then give artificial respiration preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If on Skin or Clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Immediately rinse skin with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in Eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

Have the product container or label with you when calling a poison control center or doctor or going for treatment. [You may also contact 1-800-222-1222 (or other appropriate number) for emergency medical treatment information.]

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

{Note: The first aid statements' grid format will be used if market label space allows; otherwise a paragraph format will be used.}

**Environmental Hazards**

This product is toxic to fish. Do not apply directly to water.

**Physical or Chemical Hazards**

Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.



**Earthfire Injection System**  
Model CF001 / Professional Grade  
**A Subsurface Thermal Fogging Injector System**  
**Directions for Use Manual**

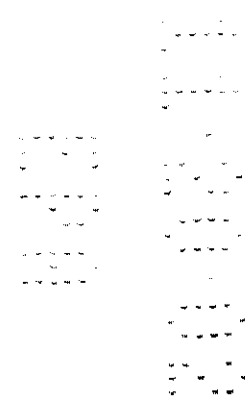
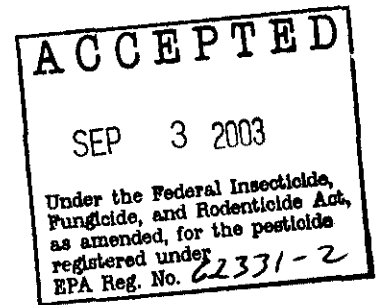
Another Product of:  
**Invicta LLC**  
466 Duchamp Drive Nokomis, FL 34275-3508

For Use With:  
Formicine Insecticide  
and  
Earthfire Vaporizing Fuel (Propane)

**Table of Contents**

Injection System Drawing .....  
Directions for Use .....  
Preparation .....  
Injection (Imported Fire Ants) .....  
Variations .....  
Shut Down Procedure .....

**Figure 1**



**Directions for Use**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.  
For use only in subsurface injection as a Thermal Fog.

**Not for use as an open air fog or aerosol.**

**Thermal Application:** For the control and eradication of the Imported Fire Ant by direct injection into the mound and subsurface colony. The insecticide is to be used, undiluted, only in thermal applicator equipment capable of heating the liquid to a minimum of 2,000°F (1,093°C) and capable of delivering spray particles within the aerosol size range.

Using this company's Earthfire Injection System, the following is the acceptable procedure:

**Preparation**

1. Fill the Earthfire fluid (insecticide) container (fig.1) to the bottom of the neck. Do not overfill. Use only *undiluted* Earthfire Vaporizing Fluid. Be sure the "O" ring seal is in the screw cap of the snorkel tube assembly.
2. The propellant or pressurizing device for the insecticide is the CO<sub>2</sub> bottle (fig. 1) which has an attached pressure regulator with gauges and connecting hose.
  - a. Snap the CO<sub>2</sub> connecting hose onto the insecticide container cap at the male ("sabre") connector.
  - b. Open the CO<sub>2</sub> bottle by turning the large valve on top of the regulator. This will activate the gauges. Normal operating CO<sub>2</sub> pressure is 800-900 psi. **Caution:** Do not leave this tank in direct sunlight or anywhere that it can become heated above 80°F. *Never permit the tank pressure to exceed 1,800 psi.*
  - c. Adjust the operating pressure to 8 to 12 psi as indicated on the green, low pressure gauge. The pressure should be set at the factory, but if any adjustment is necessary, loosen lock nut, turn large silver colored screw clockwise to increase the pressure or loosen the screw to decrease the pressure then tighten lock nut.
  - d. Open the in-line ball valve located on the incoming line attached to the insecticide container cap.
  - e. At this point, the entire system should be charged and ready to use. Carefully fill the heating coils with fluid by "tapping" the trigger. You will notice a distinct surge in the hoses. When the first drops of liquid come out of the nozzle, the entire system is full. While performing this procedure *keep the lance tip pointed toward the ground.*
  - f. At this point, carefully check your entire system for leaks. If there is any evidence of either fluid or gas leaks, **do not proceed!** If there are leaks, shut the pressure off and check the leaking connection for misalignment, bad seals or "O" rings, or loose connections. Adjust and start over.
3. Next, attach the Earthfire Vaporizing Fuel (propane) bottle to the Sure Fire™ Ignitor (fig. 1).
4. Turn the black ignition button knob located on top of the Sure Fire™ Ignitor to "on" and press down. When the gas (propane) has ignited, press the small, silver colored lock-on button on the front, top of the Sure Fire™ unit. This allows a constant, regulated amount of fuel to be fed into the vaporizing chamber.

**Caution:** Once you have started vaporizing the insecticide, you *must* vent the coils by pulling the trigger at least every 10 to 15 minutes to prevent filling the coils with carbon (that will pack so tightly causing total coil blockage) and overheat the insecticide causing it to lose its effectiveness. A gentle tap of the trigger to allow a burst of vapor to escape is sufficient. The vapor should be completely white at all times. Discoloration of the vapor indicates you are overheating the insecticide and that you should vent more often. Continue to expel vapor until it becomes *white*. After you have shut the system off, vent vapor occasionally to aid in the cool down process and to reduce carbonization.

5. To shut the fuel system off, press the ignition button again. This will automatically disengage the constant flow button.
6. In warm weather, allow about three (3) minutes for the vaporizing chamber and coils to reach maximum temperature. **Note:** In cold weather, below 40°F (4.4°C), wait at least five (5) minutes as it takes more energy to vaporize the cold fluid. If the coils are not allowed to reach maximum temperature, you will not be able to maintain constant vaporization of the fluid and thus will not be able to properly inject the Fire Ant nests. You must inject a white smoke-like vapor to properly fill the entire mound – hot fluid is wasteful and is of no more value than any other drydown method.
7. To test for proper vaporization, place the lance tip on the ground, downwind, and gently pull the trigger one time. If proper vaporization has been reached you will see a large cloud of dry, *white* vapor. This vapor is highly flammable! NEVER fire a burst upwind of the vaporizing coil! Do NOT breathe this vapor!

**Note:** Users of this device must wear a protective mask at all times. We recommend a respirator of the type approved by NIOSH/MSHA (National Institute for Occupational Safety of Health/Mine Safety and Health Administration) for organic vapor protection. Such masks are available upon request at additional cost.

**CAUTION CAUTION CAUTION CAUTION**

When in use, parts of this injector system are extremely hot and will cause severe burns if brought in contact with any part of your body. Be extremely careful never to touch the vaporizing chamber, the lance or the small vapor lines. Use only the fixed handle and the adjustable foregrip (handle).

**Injection  
For Imported Fire ant – *Solenopsis* spp.**

**Note:** Due to the wide variety of soil types and soil water content over the habitat range of the Imported Fire Ant, you may find that by slight adjustment of the following techniques you will produce the best results for your area. The following descriptions are for a worst case scenario, i.e., heavy clay soils. Sandy and loamy soils are much easier to inject with near perfect results every time. The most difficult injections will be after heavy rains, when there is 90% to 100% water saturation of the soil. The next most difficult injection will be in the very dry summer mounds of heavy clay that are extremely hard and have a surface pack of grass or weeds woven into the outer cover of the mound.

**Caution:** You *must* be ready to begin your injection immediately upon approaching the mound because the workers will begin an evacuation of the entire colony as soon as they detect any vibration of approaching footsteps. They are so sensitive to pressure changes that they begin this evacuation when you are eight (8) to twelve (12) feet away. An entire colony can be evacuated in less than 60 seconds! Do not mistake the swarming workers that will appear on the surface of the mound as the entire colony. They are only the defenders of the colony. The queen(s) and the brood – larvae, pupae and eggs – will already have been evacuated. To kill the colony, you *must* kill all of the queens and the brood.

1. Before approaching a mound, note its size and shape and decide exactly where you will make your first injection. Then walk quickly up to the mound and insert your lance tip into the surface of the mound. It is usually best to make this insertion on the side of the mound about one half of the distance between the top of the mound and ground level. This will allow you to insert the lance tip into the mound at an angle of 45° to 60° – a comfortable angle for the operator.
2. Make your first injection by inserting the lance tip into the mound deep enough to break the surface “pack.” This is the relatively smooth covering of the colony that is about one half to one inch thick and covers the ends of the complex of tunnels of the colony.
3. After you have made this first probe, withdraw the lance tip to near surface level at the same time that you are pulling the trigger to let vapor be drawn into the mound. Do not be concerned about how deep you have made your probe; you cannot probe too deeply. With about two inches of the lance tip left in the mound, pull the trigger to release the vapor. If the insertion has been made properly, the vapor will be forcefully pulled into the mound with a distinct “sucking” sound and action.
4. There is a natural vacuum effect within the colony that will allow you to completely fill the colony chamber from this near surface position. Within seconds you should see vapor coming out of the mound or out of the ground somewhere other than your injection site. As soon as you notice this effect, move to another site on the mound and repeat your insertion and vaporization. This will fill any other areas within the colony that may have been missed with your first injection. A properly injected colony will have a thick, white vapor flowing over the entire surface of the mound as it comes up from inside the colony. Also, you will see vapor coming out of the ground from nearby foraging tunnels or cracks in the ground. When this is noted, you have completely filled the colony and you will have eliminated it.

**Caution:** Do not stand downwind of the vapor. Never allow the vapor to be blown over any water supply. Do not use within fifty (50) feet of animals, birds or valued insects such as honey bees. Do not use this procedure when there are gusty winds of more than 8 to 10 mph.

5. For large colonies it is recommended that you make several insertions with the lance and continue to flood the entire colony with vapor. Be particularly sure that you have injected vapor into the edges of the mound. It has been found that in most instances of incomplete destruction (kill) of a colony, the fault lies with the equipment operator's failure to fill the edges of the colony with vapor, thus leaving pockets of untreated ants and untreated areas inside the colony. When you have treated the entire colony in the above manner, you will have effected a 100% kill of this mound. Always fill the entire mound with vapor so that when the vapor cools and recondenses, you will have left a long lasting lethal residue to kill all returning forager ants that will have been away gathering food while you were treating the mound. Remember, you can not make too many injections or put too much vapor into the colony. It is better to “overkill” and be sure than to have to return for a follow-up treatment.

**Note:** The injection procedures should require no more than one (1) minute per mound. Each injection should take about 10 seconds total time, with the length of time you hold the trigger down being about one (1) to three (3) seconds in each injection site.

**Variations**

1. For very small surface colonies, one injection is usually sufficient. You may also “stir” the surface part of the mound while releasing vapor as described in Number 4 of *Injection*. Always be sure to inject as deeply as possible.

2. In colonies that are water logged (100% water saturated) you will find there is a "free water" level, i.e., a point below ground level of 100% water in which no ants can survive. There will also be isolated pockets of ants and brood that have been sealed off from the water. In some instances there will be some pockets of survivors *below* the free water level. Many of the tunnels and chambers will be sealed by a "water-lock," very much like the grease trap below your sink. These are extremely difficult colonies to kill because of these isolated pockets of ants. Remember: if *one* queen survives, the colony survives. If practical, leave these colonies for injection when they are dry. However, if you must try to kill these colonies, you must do the following:
  - a. Make your normal injections just as described above since most of the colony will be very near the surface, warming and drying the brood.
  - b. Next, insert your lance as deeply as possible into the colony, even below the free water level, and with stirring motions continue to release vapor. In other words, you must virtually destroy the mound and the subsurface chambers with the lance while contaminating it with vapor to ensure a complete colony kill.

**Note:** In cool and/or wet weather the eggs, larvae, pupae and most of the colony will be very near the surface, facing the sun, warming and drying. This is particularly true in the winter or any time the ground temperature falls below 68°F (20°C). Commence your kill at this point. However, in hot weather, the entire colony normally will be quite deep in the nest. The ants and the brood cannot tolerate temperature extremes.

3. In dry sand and soft loam type colonies, the internal dimensions are usually quite large compared to the clay colonies. However, the pressure of your Earthfire system provides a complete filling of the chambers with vapor, and by following the above described methods of injecting, you will effect a 100% colony kill.
4. **Note:** This system works best when the weather is bad! That is, any condition that keep all of the ants in the colony at a given time is, of course, the ideal time to inject. Also, those conditions that cause the entire colony to "clump" or gather into a single area of the mound are the best times to inject for a 100% kill of the colony.
5. **Special Note:** When you have treated a colony during those times when large numbers of forager ants are away from the nest, you may find that these workers will establish a small surface colony, usually on the southeast side, near the killed mound. These ants are sterile; they *cannot reproduce* and usually will die within a few days. Always check these small colonies for the presence of larvae and pupae. If you see any white egg-shaped objects, then you have probably failed to kill the entire colony. These are escapees and should be treated at once. If you see no larvae or pupae you need not treat any further since the original nest is contaminated and will kill any ant that re-enters.
6. If you find larvae or pupae in more than 10% (1 out of 10 mounds) of the small, satellite colonies described above you are failing to inject the nests properly. There are lateral foraging tunnels about one (1) to two (2) inches beneath the surface, leading away from the main mound chamber that the ants can use as escape tunnels. It is necessary that you completely fill the mound with vapor as rapidly as possible to prevent the use of these escape tunnels. The vapor usually paralyzes the Fire Ant in less than 15 seconds. Of course, every ant that is touched by the vapor is contaminated, so just be sure that you have filled all of the chambers and tunnels of the mound and you will have effected a 100% kill of that colony.

When properly administered this system *eliminates* the Imported Fire Ant and does not merely allow them to move to another location as is the case with other methods.

If you have questions or problems regarding your Earthfire Injection System or about the Imported Fire Ant in general, please feel free to contact us. Send you inquiry to:

**Invicta LLC**  
 Attention: Biology  
 466 Duchamp Drive  
 Nokomis, FL 34275-3508

Enclose a self-addressed, stamped envelope and one of our biologists will answer your questions completely and to your satisfaction.

**Caution:** Earthfire vapor is highly flammable. Keep away from sparks, open flame and extremely hot surfaces! **Never** eject vapor upwind of hot vaporizing chamber on the injector gun.

**Shut Down Procedure**

**It is IMPORTANT to do the following procedure in order:**

1. When you are ready to discontinue the use of your system, first shut the flame off by pressing the ignition button on the Sure Fire™ Ignitor. This will automatically release the lock-on button to the "off" position.
2. Next, close the CO<sub>2</sub> valve and the valve to the insecticide container. Disconnect the CO<sub>2</sub> line from the cap. Slowly open the valve on the cap to relieve the CO<sub>2</sub> pressure from the system. Now you may disconnect the line to the injector gun.

3. Next, unscrew the propane bottle and remove it from any contact with the injector system. The system will remain hot for some time and the propane is highly flammable. *Be Safe! Prevent Accidents!*
4. Now, with the lance tip on the ground, pull the trigger to vent all of the pressure from the system and expel the remaining vapor.
5. Finally, be sure your system has cooled completely before storing or transporting. *The vaporizing chamber cover is very hot when in use. Do not touch it or place it near any flammable substance.* The lance and the vapor lines are also extremely hot. Never touch these or place them on or near any flammable substance.

**Notes**

{This section of the manual is for any notes the applicators may wish to make during training or other times.}

